A CROSS CULTURAL STUDY OF THE USE AND PERCEIVED EFFECTS OF BACKGROUND MUSIC IN STUDYING

By
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Σε όλους τους δασκάλους μου

Ithaca

As you set out for Ithaca
Hope your road is a long one,
Full of adventure, full of discovery.
Laistrygonians, Cyclops,
Angry Poseidon- don't be afraid by them:
You'll never find things like that on your way
As long as you keep your thoughts raised high,
As long as a rare excitement
Stirs your body.
Laistrygonians, Cyclops,
Wild Poseidon- you won't encounter them
Unless you bring them along inside your soul,
Unless your soul sets them up in front of you.

Wish that your trip be long
Many summer mornings arrive
That with joy and pleasure you enter
Into ports that you've never seen before;
To stop by phoenician trading posts
And buy things of various sorts:
Mother of pearl, and corals, ebony and amber,
And hedonic perfumes of all sorts-
As many as you can carry sensual perfumes;
Many an Egyptian city you must see,
And from the experts learn and learn.

Forever Ithaca must be in your mind.
To get there is the goal of your trip
But do not hurry your journey at all,
It is better if it were to take many years
And you an old man to finally anchor this trip,
Expecting no wealth that Ithaca will give you.

Ithaca already gave you that great trip
Without her, you would have never sailed at all.
But she has nothing else to give you from now on.

And if you find her poor, she didn't mislead you.
So wise that you already are, so experienced,
You now comprehend what Ithacas really are.

Konstantinos Kavafis (1863-1933)

Abstract

Research suggests that music affects people's behaviour and performance. These effects may be mediated by a range of factors. The present study attempts to explore students' perceptions of the use of and the effects of music on their studying taking account of cultural differences (English, American, Japanese and Greek students), age (12-13, 16-17, 20-21 year olds), gender and musical involvement (playing a musical instrument or not). These factors were explored in a survey using rating scales with students from each nationality. Significant differences were found between nationalities in relation to the music students listened to, when they chose to listen, for what kinds of studying, and in their perceptions of the effects that the music had on them and on their studying. The findings suggested that students' nationality, age, gender and musical involvement affected not only the music that they listened to, and their decision to listen to it while they were studying, but also the perceived effect that music had on them and their studying. A second experimental study examined the effects on adult learners of two different kinds of background music (arousing or calming), or no music on performance on a logical reasoning task and a realistic comprehension task. No significant differences were found in the performance of the three groups on the logical reasoning task, or in the reading task. The significance existed in the responses of the students to questions about the effects of the music on their performance. Those in the arousing music group reported difficulty in concentration and the need to adopt coping strategies.

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Anastasia V. Kotsopoulou

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INTRODUCTION

CHAPTER 1

INTRODUCTION

Music and its effects on the emotions, mood, behaviour, character and the personality of individuals have been of interest to philosophers, priests, scientists, educationalists, psychologists, and musicians for many years. Over the centuries, from ancient times till today, music has been utilised for a great variety of functions, ranging from its relaxing and soporific effect in lulling a baby to sleep to the compulsive and forceful feelings it can generate in encouraging men to kill in battle (Wigram, 1993). More recently, controlled investigation has examined rigorously the influence of sound and music on psychological processes, physiological activity, therapeutic treatment, and human behaviour (Hallam, 2001).

Since the advent of radio, music has become easily available to the majority of people in a way that was unthinkable in the past. We are fed a constant diet of music through the media and when we are in public places. As a result of this, psychologists have become increasingly interested in studying the effects of music on a range of activities and there is a growing literature in the field. An important part of this research has explored the effects of music on studying, as there is evidence that many young people listen to music while completing their homework. Much early work was unsystematic not taking account of the type of music being played - whether it stimulated or soothed- making it impossible to interpret the findings. Furthermore, factors such as the characteristics of the individual (age, ability, personality, metacognitive strategies, musical expertise, familiarity with the music, frequency of use of background music, nationality, previous experiences of listening to music), and the nature of the music (type, stimulating/relaxing, complexity, volume, familiarity, like/dislike of the music, and whether it was self selected) were not taken into account. Typically, students were asked to complete a task while music was playing in the background; their performance was then measured. Each study was undertaken in isolation and there was no sense of progression or overall direction. Students generally did not have the opportunity to select or evaluate the music, they were not asked what they perceived the effects of the music to be on their behaviour and studying, and they were not asked if they normally listened to music while they were studying. In an attempt to provide a framework, which integrated these possible-mediating factors, Hallam (2000) developed a model. The present research will consider some of these factors within the framework provided by the model. The model is described in detail in this chapter.

Of the research that has been undertaken, most has focused on the use of music while students are undertaking particular tasks. Performance on a range of tasks has been considered, for instance, reading (McDonald, 1975; Harp, 1988; Hall, 1952; Douglas and Willat, 1994), writing (Karnowski, 1986; Koppelman and Imig, 1995), mathematics (Scott, 1970), memorising (Morton, Kershner, and Sigel, 1990), and learning a foreign language (Failoni, 1993). Most of this research has been quasi-experimental in that it has been undertaken adopting experimental methods but in classroom rather than laboratory conditions. Such conditions do not reflect the ways that students listen to music in their everyday lives. While students do have to undertake tasks set by others, they normally have control over whether they listen to music while completing those tasks and also the type of music that they listen to. A previous study by Kotsopoulou (1997) began to explore some of these issues. This research demonstrated that 63% of the responding students listened to music while they were studying, mostly calming or slow music. They reported preferring to listen to music while they were reading or writing, and not when they were memorising texts, or revising for exams. The present study extends this work exploring students' use of music in their everyday lives and in their studying and their perceptions of its effects on them and their work. It considers whether there are cultural, age or gender differences and whether being actively involved in making music has an effect on listening habits. The issues to be addressed are:

1. The extent to which students report listening to music in their everyday lives and in what circumstances.
2. The extent to which and in what circumstances students report listening to music when they are studying.
3. The kinds of music students listen to when they are studying.
4. Students' reported perceptions of the effects of listening to music while they are studying.
5. What factors influence students' decisions to listen to music while studying?

These questions will be considered in relation to students' nationality, age, gender, and musical involvement.

The second part of the research attempts to offer some validation for the questionnaire survey by focusing on the extent to which mature students are aware of the effects of music on their studying in an actual learning situation, the extent to which they attempt to mediate those effects and the extent to which their attempts at mediation are successful in relation to task performance.

Chapter 1 of the thesis provides an overview of the existing literature with a particular focus on the music of those nationalities to be studied: USA, UK, Greek and Japanese. Chapter 2 considers methodological issues and Chapter 3 sets out the methodology for the first part of the research. Chapters 4, 5, 6 and 7 report the findings of the first part of the research. Chapter 8 describes the quasi-experimental work, which was undertaken. The final chapter, discusses the findings, sets out the limitations of the study and suggests possibilities for future research.

LITERATURE REVIEW

1.1 The use of music in ancient times

The first indication of humans' use of music comes from the "cage of the three brothers" (Grotte des trois Frères) in Ariège in the South of France. The fresco-paintings found there were created by Homo sapiens around 4000 BC or a little later, and show, amongst other things, a man dressed in the skin of a wild animal, playing a harp, in a magic ceremony. Whatever the meaning of this painting, it clearly indicates that the social life at the time, included ceremonies, which involved the use of music. Later fresco-paintings depict feasts where music was used, mostly for magical purposes, but also for hunting and burial rituals.

Years later, Homer (800 BC), in the Iliad, describes the angry Achilles enjoying himself by playing the formiga (a kind of lyre) and singing about the achievements of his men. In the Iliad the use of music in symposiums, weddings and funerals is also referred to. Achilles' shield provides us with information about musical life and details the way feasts were held. Hesiodos, in his work "Theogony", describes how the Muses, appeared to him, offered him a stick from an olive tree, and inspired him with divine singing. The Muses are those who offer to men the gift of singing, and to Kings the art of melodic speaking. In the Odyssey, Homer gives details about the music performed by a singer who appears in the royal fields, and at feasts and sings for the Gods and heroes. At the same time we know about the songs and the dances of the suitors of Penelope, and that Calypso and Cerci were singing with "good voice" while they were weaving. The Sirens, also, tried to attract Odysseus with the magic power of their "melodic song".

In the 5th century before Christ, the ancient Greek philosophers acknowledged the power of music and started using it as a therapeutic tool. They found that quiet and soft music had a soothing effect and that lively music had a stimulating effect on humans. Plato (429-347 BC) suggested that "what is for the body is gymnastics and what is for the psyche (soul) is music". He criticised the kind of music that tempted the listener only to enjoy it, and supported simple melodies and rhythms that he believed improved the character. In his book 'Politics and Law', we find great justification for the use of music. He postulates that "music was not given to man to entertain his senses but to calm his suffering of the body and soul". He claimed that music, through a metaphysic of explanation, restored psychic health. Plato's student Aristotle (384-322 BC) elaborated the theories of his teacher and provided three reasons for music being taught to young men:

- For pleasure and relaxation
- Because it acts positively in the development of the character
- Because it can contribute to intellectual and sensational pleasure and development.

He also made two claims for the therapeutic use of music, which reflect some that are made today; mild mental disorders can be cured by the use of calming music; in cases of grave mental disorders, pathological shaking, if accompanied by powerful music, may lead to purification that can lead to the curing of the disorder.

Besides the therapeutic use of music, the ancient Greeks included music in many everyday activities: music for the Gods and music for men. In the first category, the hymn, the paean and the dithyrambs are types of song dedicated to the God Apollo (paean), or Dionysus (dithyrambs). In the second category, songs for men belong the hymen and the epithalamium, which are songs for weddings, the dirge, songs for memorials, and the triumphal ode dedicated to the winners of sports. Apart from these there were love songs, and songs for work including songs for reaping (litiersis), grinding (epimilios), drawing of water (imeos), pressing of grapes (epilinion melos) and others. The shepherds used to play the flute to round up their sheep while at the same time entertaining themselves. Often mentioned are the melodies, which were played during rowing to provide rhythm, or the commands in racing, that were given by the flute to strengthen the athletes so that they would perform better. These historical accounts provide evidence that man has used music in a range of complex ways to serve a wide range of functions over many, many years.

Since the time of the ancient Greeks music has developed in many different forms in different cultures. The next sections will briefly outline developments in those countries from which the student sample in the research is drawn. It will outline the major influences, which have impacted on the music, which is current in those societies.

1.2.1 Music in England, Greece and Japan

In England, there was a strong tradition of music within the church and there is evidence that folk songs existed from the 12th century. Later, because of close links with Europe, music developed within what has come to be known as the western art music tradition.

In Greece, music also had an important role in everyday life. There were similar divisions: religious music, hymns that were performed inside the churches, without instruments, and everyday songs – folk songs, that varied between the provinces. These survived during the Turkish occupation (1453-1821) but during that time music was inevitably influenced by Turkish culture. After the revolution, new composers appeared influenced by Italian, Russian and central European schools for instance, Kalomiris, Lampelet, and Varvoglis. These influences have led to Greek music developing a distinctive character.

In Japan, two types of traditional music developed: art music and folk music. Art music has several different styles, each of which was established separately in different periods of Japanese history. The first significant development in the history of Japanese music took place in the Heian Period (794-1192 A.D.). All kinds of music from various Asian countries of the previous two centuries was assimilated and modified, acquiring distinct Japanese characteristics. Different styles were classified: for example, gagaku, to-gaku, kokufu kabu, saibara, shomyo. A great number of folk songs exist in different provinces in Japan. Most of these songs were originally associated with religious events or daily labour, such as fishing or working in the mountains. However, now that the lifestyles, which generated those songs, have drastically changed, they have lost their relationship to the original functions and are generally sung for recreational purposes.

1.2.2 Music in the USA

Gillett (1993) has given a short account of the development of popular music in America in the early years of this century. The most important source of new songs was vaudeville and music hall. When stage musicals began replacing vaudeville in its role of introducing new songs, record companies took the opportunity to record these 'show tunes' and publicised them by broadcasting through the mass media. Towards the end of the thirties, Tin Pan Alley and its show tunes were challenged briefly and in an indirect way by the sudden trend towards orchestral 'swing' music, which was developed by various black bands in the late twenties and early thirties. They came into demand during World War II as the vocalists with the bands began to gain more prominence. The shift from the band- leader to the singer was initiated by the band- leaders themselves, who competed with one another by featuring their increasingly famous singers. Hardly any vocalists wrote their own material, and their 'creativity' was measured in their ability to improvise phrasing and impact meaning to the Tin Pan Alley songs.

Most popular music has been influenced by black people, and 'country and western' was no exception. Country music shared roots with black gospel music. During the forties probably more elements of black music than other musical styles were accepted into the popular mainstream music of the time. Most of the record companies regarded country and western as a specialist music without popular appeal.

Various other styles, like jazz, blues, rhythm and blues, rock and roll and motown, were largely influenced by the music that was brought by the slaves to America. As Walser (1993) points out, nowhere are genre boundaries more fluid than in popular music... Genres are ...developed, sustained, and reformed by people, who bring a variety of histories and interests to their encounters with generic texts. Moreover, the 'history of twentieth century popular music is impossible to write without reference to the changing forces of production, electronics, the use of recording, amplification and synthesizers' (Frith, 1987).

1.2.3 Music now

The 20th century witnessed a revolution in music. This largely occurred because of the development of technology, which enabled most people to have easy access to professionally performed music. With a single move we can turn on the radio, play CD or tape, or listen to music on video or T.V. with very little effort. New terminology has appeared: music industry, radio, discs, DJ, charts. Music of all kinds is now available to everyone at any time.

The music industry that developed in the USA spread through the younger generations to all nationalities. Rock, pop, soul, and jazz music, first developed in the USA, attracted enthusiasts from all over the world. The UK has also produced pop groups who have become renowned internationally, e.g. the Beatles, the Rolling Stones, the Spice Girls, Oasis, Boyzone. Popular music, which has become a hit in Europe and the USA, is almost immediately introduced to the markets in Greece and Japan. The record companies in these countries have responded to these influences by introducing their own popular music.

In Greece, during the 1960s orchestral music (with artists like Thoedorakis, or Hatzidakis) representing the popular works of Greek composers of the formal tradition, i.e. composers who wrote contemporary music of the Western 'classical' tradition, appeared. Their instrumentation was, in the majority of compositions, for symphonic orchestra but solo instruments were very often traditional Greek instruments (e.g. bouzouki). The lyrics were not written by professional songwriters, but were poems of well known Greek poets of the 20th century (e.g. Seferis, or Elytis). A large part of the Greek music industry remains concerned with traditional Greek music. This tends to be heard at major formal ceremonies (e.g. weddings, national days, school festival). It is the music of the last two centuries, which survived during the wars, and kept Greek culture alive. Another style of music that appeared in the 1970s was Greek popular music, used both for dancing and listening. Live performances can be heard exclusively in thematic night clubs, where the majority of the audience consumes large quantities of alcohol, dances, and until a few years ago, smashed dishes. Greek popular songs are mainly love songs with popular modes and rhythms. Over the last decade, another style has emerged: Greek pop. It began through the translation of UK and American pop songs into Greek but gradually original Greek pop music developed. It represents mainstream popular music and is addressed to young listeners. The musical instruments most commonly used are the electric guitar, keyboards, and percussion. Performers are often 'idolized': teenagers follow their dress code, and form fan clubs.

In Japan, the situation is very similar to Greece. The music listened to or played by the Japanese, as part of their daily lives is extremely diverse. They enjoy various kinds of traditional Japanese music, Japanese popular songs, American pop music, western classics and so on, although there are limits to each type's popularity. While music was once confined primarily to live performances in concerts, the introduction of radio and later television and video brought it into the homes of the masses. The explosive popularity of electronic reproducing systems in recent years has made music an almost indispensable element in the daily lives of most Japanese.

Two types of traditional Japanese music have survived through the years. Similarly to Greece, in Japan, popular music started after the introduction of American pop music. Initially, Japanese popular singers, either in their original form or in Japanese translation, sang American songs. Now, the music that receives the broadest support from the public in general is Japan's own original popular music called kayo kyoku. The basic styles of kayo kyoku were established in the late 1910's through the early 1920s. They were derived from the musical style of songs originally composed for school education. The scales blend western and Japanese scales. While keeping such basic styles as a major element of kayo kyoku, its form has been widened through the influence of western popular songs.

The American music industry has had a powerful influence on the music industries of countries like Greece and Japan. Japan is the second biggest world market for recording sales, with 16.7% of the $33.5 billion expanded on recordings in 1994 spend there; the USA was number 1 with 33.3% of the sales (Taylor, 1997). Over time what seems to have happened is a globalisation of music. This global/cultural mixing in the post-modern world has led to new ethno/mediascapes resulting in new music, much of which sounds increasingly North American. Parallel to this many countries are attempting to preserve their cultural traditions. Greece and Japan have attempted to keep their traditional music alive, while producing new musical styles, which although influenced by western music have their own language and distinctive national qualities. The research described in this thesis will explore the extent to which this has been successful amongst teenagers and young adults in these countries by investigating which types of music they report listening to the most.

1.3 Use of music in everyday life

Merriam (1964) suggested ten functions of music in society: emotional expression, pleasure of the senses, enjoyment, communication, symbolic representation, natural reaction, force of the law of the society, the legacy of social and religious ceremonies, a contribution to the continuity of the civilisation, and a contribution to the integration of the society. To this long list, other more recently developed functions of music could be added. One of these is the use of music as a background to other activities in people's everyday life: people listen to music while shopping, in airports, in restaurants, doctors' surgeries, but also while undertaking more private activities such as doing housework, driving, and studying.

Despite early acknowledgements of the power of music outlined in the introduction, systematic study of the psychological importance of music was overlooked for many years. Dalcrose (1865-1950) suggested that music should play a major role in all education, not only music education, because it can satisfy almost all the desires of man. His writings opened up the field of music therapy, bridging the gap between music education and the use of music to help those suffering from mental illness. In the USA, after the First World War, professional musicians began to join hospitals and play music to the wounded. The results of these visitations were beyond the doctors' expectations, which suggested that there should be special education in this field. The first organised music therapy was authorised in the USA in 1950. Since then, much research has been undertaken considering the influence of music on the neurological system and the brain functions of human beings. Experiments (Sloboda, 1985; Booth-Davies, 1978; Shatin, 1970) have shown that while sleeping, humans respond to acoustic stimuli. Other studies have focused on the relaxation of the muscles, heart rate and tension in relation to the sounds of music (Logan and Roberts, 1984; Standley; 1986; Iwanaga, Iketa and Iwaki, 1996) and there has been extensive use of music in medicine and palliative care (Hallam, 2001). There have also been studies exploring the psychological processing of music, control over emotions, actions and performance, as we will see later.

A number of writers have discussed the functions of music (e.g. Merriam, 1964; Gaston, 1968), while others have researched both the physiological and psychological effects (see Radocy & Boyle, 1988 for a review). As a result of this research the effects of music have come to be considered as lying on a continuum from highly stimulating and invigorating to soothing or calming (Gaston, 1968). There is certainly strong evidence from a variety of sources that people respond differently to stimulative and sedative music (Radocy and Boyle, 1988). Recent research has focused on the influence of music on affect, arousal, emotion, and mood. Music is seen to contribute to social influence by virtue of its capacity to include affect. There is little doubt that music has this capacity. This has long been the subject of much philosophical analysis (e.g. Langer 1976; Budd 1985) and there is psychological evidence that relates specific qualities of music to mood, including phrasing in singing (Sundberg 1982), melodic contour, and modality (Kastner and Crowder 1990; Gerardi and Gerken 1995). The relationship between music, mood, and social influence has also been a topic of research in advertising, marketing, and consumer behaviour (Bruner 1990; North and Hargreaves, 1998). Findings from other research suggests that the affective outcomes associated with background music (Friedrich, 1984), and environmental music might be useful in promoting better work environments (Uhrbrock, 1961), financial gain (Millimam, 1982), socialization (Stratton & Zalanowski, 1984), or even in providing distracting 'clutter' for persons who either prefer, or sometimes find themselves in situations where music actually provides momentary release from the intensity of high-magnitude attentiveness or long periods of concentration. There has also been research into the role of affect in psychological processes, including 'attributional processing, decision making, person impression formation, forming judgements about members of a group, and processing persuasive messages' (Hamilton et al. 1993, p.41). Music can also have an impact through the associations it forms with events in our lives. Consumers were more likely to buy French wine in a supermarket when stereotypically French music was playing than when stereotypical German music was playing (North et al 1999). This effect occurred without their conscious awareness.

Given the way that music can influence our behaviour, we know relatively little about the extent to which people listen to music and when. In the USA, in 1989, the American Medical Association reported that the average US high school student heard over 30 hours of pop music a week. In 1993, 98.5% of teenagers in the USA claimed to listen to music. A recent US survey of musical tastes indicated that 75% of mature citizens listened to music for at least one hour everyday. They preferred classical, show tunes and country music. Nowadays, as Hodges and Haack (1996) discuss listening to music is surely one of the most common of human experiences. People listen to music in many environments. They listen at home: in many cases from the first moment of the day until the last, since radio music alarms wake us up or help us sleep and radios, stereos and televisions play all day long. Children are involved in music at school as part of the curriculum and often extra-curricularly through learning instruments, an activity which they may maintain on leaving school. Derloshon (1994) found that 62 million people in USA claim to sing or play a musical instrument. People are involved in music in the community: church choirs, school groups, community bands, etc. In 1984, (MEJ 1985) people spent more time attending arts events than sports events. Music is used in industry and commerce to improve productivity (North et al, 2000) and to influence consumers' behaviour (North and Hargreaves, 1996, 1998, North et al, 1999). Music continues to be used in most religions and plays a major role in special occasions of all kinds from marching bands, to Christmas carols, and other celebrations. It is used in politics, where it has the power to help rally a crowd behind a candidate at a nominating convention or to help dramatize the visit of an important foreign dignitary. It has always played an important part in the military: in ceremonies, in training and historically as a means of giving commands and inculcating courage in battle. Music is used in health care systems, via music therapy applications in a variety of handicapping conditions and increasingly in medicine to assist in recovery, alleviation of pain and amelioration of some conditions. It can be used to accompany training activities in sport and is usually an integral part of aerobics dancing. Music plays a major role in the media commercially in relation to advertising and in enhancing other art forms. It is played extensively in public places from restaurants and pubs, to doctor's offices and supermarkets and is increasingly used on hold on the telephone and in other miscellaneous ways, e.g. ice cream vans, telephone call alerts, greeting cards, etc. There are also many musical organizations worldwide that provide people with almost any musical interest to meet like-minded people (Hallam, 2001). This far from exhaustive list indicates that music plays a major role in our lives and is likely to continue to do so throughout the 21st century. This section has explored the extent to which music plays a part in our lives and has given some indication of its power in influencing our behaviour. In the next section we explore the possible explanations for these effects.

1.4 How does music affect behaviour

The next sections will explore some of the explanations for the effects of music on behaviour.

1.4.1 Neurophysiological underpinnings of musical effects

Considerable time and effort has been expended in exploring the physiological effects of music. The effects on heart rate, skin conductivity, respiration rates, blood pressure, muscular tension, motor and postural responses, finger and peripheral skin temperature, blood volume, and stomach contractions have all been investigated (McFarland 1985). The effects of music on these measures show no clear pattern. While most studies indicate that stimulating music leads to an increased response in most physiological measures, not all do. Similarly, calming music does not always lead to a reduction in physiological response. The reasons for these differences may be related to the different procedures adopted in research projects, the fact that the music has sometimes been paired with a treatment, medical or dental, which might have been expected to increase physiological arousal and the individual cognitive responses which the individual may make to individual pieces of music. Overall, the majority of studies show findings in the expected direction, although there are some exceptions.

Many responses to music are not physiological but emotional. There has been less research in relation to the neurobiology of emotion than other aspects of human functioning and in particular in relation to musical responses. The reticular formation in the brain stem receives input from all the sensory organs. Fibres from it connect with the cortex, the limbic system and motor systems. Systems within the reticular formation regulate the transmission of norepinephrine, which triggers emotional arousal. The reticular activating system (RAS) in the brain monitors incoming signals and acts as a filtering device. Signals that are continuous or weak are eventually ignored. Strong or changing signals are referred to other parts of the brain for further monitoring or action (Goleman, 1996).

It is the limbic system, which contains most of the parts of the brain, which are involved in emotion. These include the:

- Thalamus: a major relay between sensory input and the cortex, and involved in the arousal and activation of the cortex;
- Hypothalamus – this regulates the autonomic nervous system;
- Pituitary – this controls the release of hormones into the blood stream;
- Amygdala - this is involved with aggressive behaviours and fear reactions;
- Hippocampus – this integrates incoming sensory information and is implicated in memory storage.

The limbic system receives messages about external events directly from the sensory organs. Musical experiences clearly involve hearing but may also involve visual stimulation and input from vibration. The limbic system reacts quickly and automatically to incoming information to alert us to stimuli, which may affect our safety and simultaneously prepare the body for action. Hallam (2001) suggests that this immediate reaction to sounds is important for survival and it may be these primitive mechanisms which underlie some of our immediate responses to music. Cortical pathways take longer to react but provide a more complete cognitive assessment of the situation. In musical terms they invoke memories relating to the particular music being heard. It is the complex interaction between these immediate physiological and slower cognitive responses to music that may account for the variation in individual responses (Hallam, 2001). The cortex is not necessary for certain types of emotional experience and as has been illustrated earlier, many take place with little conscious awareness (LeDoux, 1993).

Research also suggests that the limbic system contains a large number of opiate receptors, which are highly susceptible to the presence of chemicals like endorphins. Music listening in some circumstances seems to encourage the release of endorphins, which in turn elicit emotional responses. Savan (1999) hypothesises that music, particularly Mozart, can stimulate the brain to produce endorphins, which lower blood pressure. The effect of lowering blood pressure results in decreasing amounts of chemicals such as adrenalin and corticosteroid in the blood. By decreasing these chemicals, the whole body metabolism is lowered producing a 'calming' effect. This is supported by evidence which indicates that listening to Mozart in the background while working in school produced physiological changes in children with emotional and behaviour difficulties reducing systolic and diastolic blood pressure, pulse rate and temperature (Savan, 1999). Recently there has been a considerable amount of research, which has focused on the specific use of music composed by Mozart. This has come to be known as the '*Mozart effect*'. Studies have shown that Mozart's music can have effects on the brain, for students (Shaw, 1999), and special educational needs students (Savan, 1998).

Hughes (1998) analysed hundreds of Mozart's compositions, and suggests that sequences repeating regularly every 20-30 seconds 'may trigger the strongest response in the brain, because many functions of the central nervous system, such as the onset of sleep and brain patterns, also occur in 30-second cycles'. Of all the music analysed, Mozart's music most often peaks every 30 seconds. Not all the evidence supports the Mozart effect and considerably more research will be needed before differences in responses to music can be explained. The next section focuses on theories of arousal which have been used to explain different musical responses.

1.4.2 Arousal theories

Historically, theories underlying research on the effects of music have been based on arousal. Although often associated with levels of physiological activation (e.g., Hackfort & Schwenkmezger, 1989; Malmo, 1959), arousal also includes mental activation (Martens, 1987). Martens considers arousal as an index of the level of physiological and psychological intensity of an individual at any given moment. Arousal may be operationally defined by physiological measures (e.g., heart rate [HR], galvanic skin response [GSR]) or behavioural measures (e.g., shifts in attentional focus, self-reports of activation levels).

People prefer different levels of arousal. One person's overload may be optimal for another person. Some people seek stimulation while others avoid it. In task oriented situations this may depend on the nature of the task or the personality of the individual. The Yerkes-Dodson Law (1908) states that people will perform most efficiently when their level of arousal is moderate. There has also been an assumption that people generally feel best when their level of arousal is moderate, although individual baseline levels of arousal are assumed to be different. To achieve optimum levels individuals may require different levels of stimulation depending on their baseline level. In addition, the optimal level of arousal to undertake a task efficiently varies depending on the complexity of the task. Relatively high levels of arousal may be needed to maintain concentration on a fairly repetitive and simple task. To perform a complex task, a lower level of arousal may assist concentration. For instance, North and Hargreaves (cited in Hargreaves and North 1997) played arousing and unarousing music while participants were playing a motor racing computer, and they found that with the arousing music playing in the background their performance deteriorated. This effect interacted with the difficulty of the task so that performance was worst when subjects had a difficult task/arousing music combination, and best when subjects had simple task/unarousing music combination. In another study (North and Hargreaves, 1996), they asked independent groups of subjects whether they wished to exercise or relax, and gave them the option of listening to arousing or unarousing music. Their results showed that participants preferred listening to arousing music whilst exercising and unarousing whilst relaxing. This finding is consistent with a previous study (as described in North and Hargreaves, 1997) when people reported preferring quiet, relaxing music before going to bed.

Research by Eysenck (1967) suggests that arousal levels may be linked to personality factors: introverts have higher levels of arousal than extroverts. They are therefore more susceptible to over arousal. Arousal levels are also responsive to a range of environmental stimuli and are therefore not consistent over time. The effects of music on behaviour and studying are likely to be mediated by all of these factors.

There are also diurnal variations in human performance which may reflect endogenous rhythms or may be affected by external factors which are associated with particular times of day, e.g. eating a meal, the type of meal, etc. Early work focused on applied problems, for instance, which time of day was best for undertaking particular learning activities in school. The literature suggests that there is little agreement about the effects of time of day on mental performance. Some have argued that there is a relationship between time of day effects and the circadian rhythm in body temperature. Body temperature shows a consistent 24 hours periodicity with a peak around 21:00 and a trough at 4:00. Overall it is likely that many time-of day effects may not be due to changes in efficiency of the capacity of the fundamental cognitive processes but reflect differences in the way tasks are performed at different times of day. Performance on a wide range of tasks changes over a day. These diurnal variations are often large. Performance seems to vary with tasks, individual differences, the way the task is carried out, motivation and the individual's interpretation of what is going on, e.g. how they feel or think they ought to feel.

Related to diurnal effects are those which are part of a longer cycle. Boyle (1997) looked at the effects of menstrual cycle moods and symptoms on academic performance, and suggests that menstrual cycle variables play a small but discernible role on academic learning outcomes, contributing both positively and negatively to performance.

An elaboration of arousal theory is that of Berlyne (1971). Berlyne stated that the stimulus variables, which mediate arousal, fall into three categories: 'psychological' variables (the intrinsic physical properties of the stimulus such as musical tempos), 'ecological' variables (the learned associations between the stimulus and other events or activities of biological importance), and 'collative' variables (the informational properties of the stimulus such as its degree of novelty/familiarity or complexity). This theory states that preference for stimuli is related to their 'arousal potential', which is the amount of activity they produce in areas of the brain such as the reticular activating system. Stimuli with an intermediate degree of arousal potential are liked most, and this degree of liking gradually decreases towards the extremes of arousal potential. This means that there is an inverted-U relationship between preferences and stimulus arousal potential and this relates to the well-known Wundt curve (Wundt 1874) as well as to the arguments of Fechner, Plato, and Aristotle. Stimuli of moderate arousal potential are proposed to be liked most because, on their way to the higher brain, the fibres of the reticular system pass through both pleasure and displeasure centres. The former has a lower threshold level and a lower asymptotic level than the latter. With low degrees of arousal only the pleasure centre is activated so that liking increases with arousal. At slightly higher degrees of arousal the displeasure centre also becomes activated, so that the relationship between arousal and liking begins to level off. At high degrees of arousal, the pleasure centre has already reached its asymptotic degree of activation whilst activation in the displeasure centre continues to increase, and this causes liking to decrease (Wundt, 1874) (Hargreaves and North, 1997).

A series of studies by Hargreaves and North have explored the effects of cognitive complexity of music on customer behaviour. They began by looking at the effects of complexity on preferences for the music played in a student union cafeteria (North and Hargreaves, 1996). The diners were asked which aspects of the cafeteria they would like to change and they were less likely to mention the music as one of these when moderately complex music was playing. When an advice stall was set up in the cafeteria, more people visited the stall, offered to take part in the experiment, and gave the most positive ratings on a questionnaire of liking for the cafeteria when the music of moderate complexity was playing. Their results were consistent with Berlyne's theory in that moderate complexity music was preferred by diners. In another study, North, Hargreaves and Binns (1995), examined television advertisements and how the complexity of music linked to the liking of the advertisements. They found that moderate rather than high complexity music led to the highest ratings of liking for the advertisement; liking for the visual component of the advertisement, and estimated probability of buying the advertised chocolate bar.

1.4.3 Cognition and musical responses

An alternative approach to explaining responses to music is based on higher levels of cognition. The evidence cited above suggests that we can respond immediately to the sound of music with little conscious thought. As the music changes in tempo, dynamics, timbre, etc, the changes will be monitored and our autonomic nervous system will respond. Changes are also monitored at a higher level and meaning is attached to them. Here, our expectations about the nature of the music are important. If the music does not match our expectations we are likely to experience an emotional response. Music sets up expectations and tensions in listeners who are familiar with particular styles. Depending on how these are realised or resolved they can create different emotional responses (Meyer, 1956). Such responses to music depend on what we have learned in the past and depend on the type of music which we have experienced during enculturation. The ways in which we listen to music and the times when it is appropriate to do so may also be affected by enculturation. This is an area which will be explored by this research.

Music can also evoke these memories of previous events in our lives, which may give rise to emotional responses. A particular piece of music might remind us of times in our childhood.

The mood evoked by these will then depend on whether the memories were happy or sad. Quite different types of music can change mood in the same direction (Field et al, 1998). The individual characteristics of the listener and their prior experiences with music may also be important mediators of the effects of music (Robazza et al. 1994; Hallam 2001). Individual cognitive responses to music may mediate physiological responses and explain some of the variability in findings (Ogata, 1995; Vanderark and Ely 1993).

1.4.4 Metacognition and the effects of music

None of the research considering the effects of arousal on task performance has considered the possible role of metacognition. *Metacognition* has been defined as cognition about one's own cognitions (Nelson, 1992). The main conceptual categories of metacognition are (1) the accumulated autobiographical information about one's own cognition, (2) the ongoing monitoring of one's own conditions, and (3) the ongoing control of one's own cognition. Metacognition plays an important role in oral persuasion, oral comprehension, writing, language acquisition, memory, problem solving, social cognition, and various types of self-control and self- instruction. Metacognition involves "active monitoring and consequent regulation and orchestration" of cognitive processes to achieve goals (Flavell, 1976). Monitoring, regulation, and orchestration can take the form of checking, planning, selecting, and inferring (Brown & Campione, 1977), self-interrogating and introspection (Brown, 1978), interpretation of ongoing experience (Flavell & Wellman, 1977) or simply making judgements about what one knows or does not know to accomplish a task.

Metacognitive factors may mediate the effects of music on studying. Students may be aware of the condition that they are in, the fact that they have a task to complete, and that any music that is playing in the background is affecting them positively or negatively. If the latter they may "block it out" and continue with their task as if music was not playing in the background or switch it off. Theories of metacognition can explain how participants can be influenced by rational conscious decisions operating through metacognitive processes. If music is perceived as distracting when an individual is working on a particular task a conscious decision can be made to concentrate harder or turn off, or change the music. When the individual views the outcome of task performance as crucial for instance, in taking an important examination, he or she may be able to cope with quite high levels of distraction and maintain concentration. If the task is perceived as boring the individual may take a decision to use music to help maintain arousal levels at an optimal level so that concentration can be maintained. There has been almost no research in relation to metacognition and its possible mediating effects on the impact of music on task performance.

1.5 Music and behaviour

There is a considerable body of research, which has considered the effects of music on behaviour in children and young people. Some studies have investigated the impact of music on samples drawn from the general population while others have explored the effects on particular groups. An early example of the former observed the effects of different kinds of music on the activity levels of young children. Arousing music led to considerably more active play (Reiber, 1965). In older students, Kenealy (1988) played 'sad' and 'happy' music to first and second year undergraduates, and asked them to complete two self-report measures and four behavioural tasks. It was found that the music mood induction procedure differentially affected self-reported mood and some measures of behavioural change. Explicit demand characteristics were found not to have contributed substantially to the mood effects found.

Lindecker (1954) and Love (1953) explored the behaviour of young children and adolescent students presenting emotional/ behavioural problems who had been involved in minor criminal offences. In Lindecker's study, music was played in the school's living quarters over public speakers, during all activities and when the group was in a disturbed state. Members of staff and pupils believed that the music was beneficial in reducing deviating behaviour. In Love's study, sedative music was played over the speakers of a juvenile detention home and had a calming effect on the detained youngsters, whenever an argument or fight erupted. The works of Savan (1999) and Hallam and Price (1998) have also illustrated that particular types of music can have beneficial effects on the behaviour and subsequent concentration on academic tasks of pupils with emotional and behavioural difficulties.

Music has also been used to improve behaviour in normal school settings. In a study by Cowell (1984) sedative, stimulating and no music were used over a period of 12 weeks with a view to improving time on task and behaviour. While no change of behaviours was recorded, the sedative symphonic music proved significantly more likely to ameliorate on-task behaviour, than stimulating popular music. Alward and Rule (1960) used calming music to reduce aggressive behaviour and found similar positive effects.

The principle that sedative and stimulating music can have contrasting effects has also been tested on physically handicapped children. Activity rates of eleven severely mentally retarded children aged 6-17 years were recorded under classical (sedative) music, rock (stimulating) music, a male reading voice with no music background, and no music. Subsequently, the children's behaviours were observed in terms of various activities. Strangely, the sedative music was found to increase level of activity, in contrast to stimulating music. An investigation with children suffering from cerebral palsy concluded (Schneider, 1954) that response to the same musical stimulus depended on the type of disability. All the ten participants who took part showed increased attentional skill, but the athetoid children were more relaxed and more on-task with sedative music. Spastic children on the contrary were found to be more relaxed and more on-task with stimulating music. These studies suggest that the effects of music may be mediated by particular physiological conditions.

Other studies have focused on reported levels of cooperation when different types of music are being played. Fried, and Berkowitz (1979) showed that soothing and stimulating music created somewhat different positive moods while aversive music tended to arouse negative feelings. Those who heard the soothing music were most apt to be helpful immediately afterwards, significantly more so than the aversive music or no music subjects. Hallam and Katsarou (1998) gave 11-12 year old students a booklet with stories to read in one of three conditions, no music, and arousing/aggressive or calming/pleasant music. They were asked to make one of two responses an altruistic or non-altruistic response. The students in the calming/pleasant music group made significantly more altruistic responses than the students in either of the other groups. Chertock (1974), examined the effects of music on cooperative problem solving by children and found that non-cooperative behaviours tend to be greater under conditions of no recorded sound and adults' reading aloud, and reduced under art and mood music. Also more non-cooperative and fewer cooperative behaviours were noted when playing art than mood music. Different types of music seem to be able to influence our reported behaviour in relation to co-operation and altruism. This has important practical implications.

Music has also been used as a reward for improvement of behaviour. Outside the classroom, McCarthy, McElfresh, Rice and Wilson (1978) used music for rewarding good behaviour on the school buses of emotionally disturbed children, and noticed that inappropriate behaviour on the buses decreased with the use of contingent music. Hume and Crossman (1992) investigated whether music could be used as a reinforcer for increasing productive and decreasing non productive behaviour of swimmers, and found that a large and immediate increase in productive practice behaviour and decrease in non-productive practice behaviour occurred during the contingent phase compared to the baseline phase. The issues in using music as a reward for appropriate behaviour are however very different from those relating to the direct effects of music on behaviour itself.

1.6 Music therapy in education

In the past forty years, the use of music and music activities as a form of therapy to change behaviour, has become increasingly popular and has been increasingly accepted by health care professionals as beneficial. In all aspects of psychiatric care, homes for the retarded, and homes for the aged, music therapy is currently employed. It is also used with the physically handicapped, developmentally disabled, sensory impaired, and in special education within the school systems (see Hallam, 2001). Traditionally, it has been used where there is a major difficulty in communication as a result of, for example, profound mental handicap or acute mental illness. Generally, in these circumstances, the technique adopted is interactive therapy rather than listening to music.

Music therapy can help children with learning difficulties to focus their attention, increase their concentration span and, over time, improve vocalisations, looking behaviour, imitation, and initiation of ideas (Bunt 1994). Music therapy is often used to develop communication skills (Braithwaite, et al., 1998) and can have an affect on personal relationships emphasising the benefits of active listening and performing (Aldridge, et al, 1995). Improvised musical play using music and lyrics has been used to facilitate social play between developmentally delayed and non-developmentally delayed children in mainstream settings, (Gunsberg 1988; 1991) and there is a substantial body of research showing that music can be effective when it is offered as a reward for particular behaviours, for instance, to develop attention, reading or numeracy skills or reduce the incidence of aggression or maladaptive behaviour (Bunt 1997). Music therapy has often been used to help autistic children particularly with communication. The evidence suggests that improvisational music therapy can lead to substantial improvements in their communicative behaviours (Edgerton 1994). Learning words to music can also be effective (Buday 1995).

1.7 The importance of music in the lives of young people – identity and musical preferences

In adolescence music makes a major contribution to the development of self-identity (North and Hargreaves, 1998). Music's effect on moods during adolescence can be profound

(Csikszentmihalyi et al, 1993; Fischman,1987; Goldstein, 1980). Teenagers listen to a great deal of music in the UK typically almost three hours a day (North et al., 2000). Early research concluded that a relationship existed between amount of peer orientation and type of music preferences and that the motivations for listening were more physical and emotional than cerebral (that is, listening to lyrics) (Roe, 1985). Larson (1985) examined the functions of solitary media use in the daily emotional lives of adolescents, and suggested that solitary television and music listening gave adolescents an opportunity to explore and cultivate a newly discovered private self. Later studies confirmed these findings suggesting that the main reasons for listening to music were to pass time, alleviate boredom, relieve tension, and distract from worries (Gantz et al., 1978; Sun & Lull, 1986; Zillman & Gan, 1997). Researching adolescents in the UK, North et al. (2000) suggest that there are four main reasons for their listening to music: fulfilling emotional needs; creating external impressions; pleasing people; and aesthetic motivation. These are mirrored closely by the reasons given for taking part in musical activities.

Several studies have considered the relationship between the personality characteristics of adolescents and their musical preferences. Arnett (1990) compared adolescents who liked heavy metal music and found that boys who liked heavy metal music reported a higher rate of a wide range of reckless behaviour, including driving behaviour, sexual behaviour, and drug use. Girls who liked heavy metal music were more reckless in the areas of shoplifting, vandalism, sexual behaviour, and scud use, and reported self-esteem. Both boys and girls who liked heavy metal music were higher in sensation seeking and more self-assured with regard to sexuality and dating. King (1988) examined adolescents who had been hospitalised for substance abuse or other psychiatric problems, and found that 59% of substance abusers named heavy metal as their favourite type of music.

Fucci, Harris, Petrosino, and Banks (1993) examined the effect of preference for rock music on magnitude-production scaling behaviour in young adults. Their analysis indicated that there was a significant difference in performance of those who liked rock music and those who disliked it. Those who liked rock music adjusted the intensity of the music to higher levels than did the subjects who disliked rock music. They also examined the effect of preference for rock music on magnitude-estimation scaling behaviour in young adults, and suggested that the subjects who liked rock music provided significantly lower mean numerical responses than the subjects who did not like rock music for all nine supra threshold intensities.

There also appear to be age related differences in preferences for different kinds of music. LeBlanc and McCrary (1983) played different kinds of music to fifth and sixth grade students and observed that faster tempos were preferred by this age group. Not only does music play a part in the development of identity, knowing someone's musical preferences affect the way that we view them. Zillmann and Bhatia (1989), in a video dating study, found that musical preferences influenced the perceptions of those watching the study. Women preferring classical music were viewed as more sophisticated and those preferring heavy metal less so, in the eyes of men. On the other hand, men confessing to love classical music or heavy metal, neither gained not lost sophistication, in the eyes of women. They became less sophisticated when confessing to love country music.

This research indicates clearly that during adolescence music takes on an important role in young people's lives. Previous research has indicated that many young people listen to music while completing their homework or studying at college or university (Kotsopoulou, 1997). There would therefore seem to be pressing reasons to explore the relationships between listening to music and studying. The next sections will consider what we know about the relationships between music and different types of learning.

1.8 Music and learning

There has long been interest in the relationships between music and other aspects of educational attainment. This has taken various forms from the study of the direct effects of listening to or involvement with music on intelligence or the development of particular skills to the effects of music being played in the background while studying is undertaken. The next sections will examine this research.

1.8.1 Music and intelligence

Some research has explored the effects of music on intellectual skills. This has proved extremely controversial. Research which claimed (Rauscher et al, 1995) that listening to Mozart could improve spatial reasoning has proved difficult to replicate (Chabris, 1999). Studies of the effects of using the Kodaly method on other skills have had mixed results (Hurwitz et al, 1975), although music lessons designed to develop auditory, visual and motor skills have benefited reading skills (Douglas and Willatts, 1994). Learning to play the piano has been shown to produce small temporary effects on spatial reasoning but not on other aspects of cognitive functioning (Rauscher et al, 1995; Costa-Giocoma, 1999).

Studies exploring the effects of increasing the amount of classroom music within the curriculum have found that children receiving extra music lessons kept up with their peers in language and reading skills despite having fewer lessons although there were differences between different ability groups (Spychiger et al, 1995). Research using correlational techniques has investigated the effects of taking arts subjects on overall examination results. While taking music is positively related to better performance in other subjects this does not necessarily mean that it is the cause of it (Harland et al., 1998; 2000). From our current level of knowledge it is not possible to draw firm conclusions about the effects of listening to or active involvement in music making on other intellectual skills (Overy, 2000; Staines, 1999).

1.8.2 Listening to background music and studying

The first research that referred to the effects of music on learning and studying was undertaken in 1947, when Miller, a teacher in the USA, took note that his students reported that they were doing their homework while the radio was playing. He indicated in his findings that 'Some of the pupils felt that listening to radio interferes with their ability to concentrate and said they would try to secure the cooperation of their families in agreeing to a schedule under which they might have sufficient uninterrupted time to prepare assignments'. Half of the students though, to the surprise of their teacher, claimed that radio listening, did not detract from their ability to concentrate on study, but that concentration was materially helped if the radio was playing while they worked. Many years later, Giles (1991), suggested that most pupils function very well with music playing in the background and that the right music at the right time can make them less stressed, more relaxed, happier and more productive. She provided a list of music, which pupils had identified as preferable for enabling them to relax.

Overall, research on the effects of music on studying have had varied results. In reviewing early work Wolfe (1983, p. 191) provided an explanation for this:

> *'Within the past several decades, a number of studies have appeared in the professional literature concerning the effects of background music on human performance. These studies have reported inconsistent results, with some research concluding that music can enhance performance, others stating that music seems to interfere with various tasks, and still others claiming that music has no effect on performance behaviour. A close examination of many of these publications reveals studies that have used numerous and varied independent and dependent measures that may have contributed to the differences in research conclusions and interpretations'.*

Subsequently Wolfe (1982) investigated the effect of interrupted and continuous music on bodily movement and task performance of third grade students (normal and hyperactive). The only significant difference he found was that the task performance scores improved significantly with every successive testing; the use of music had no significant effect on task performance or on the number of bodily movements. McVey (1997) observed the effects of listening to music on task performance in three conditions: a) high arousal-listening to loud music; b) low arousal listening to soft/slow music; c) a control group performing during silence. Although no significant difference between groups was observed, the study revealed a higher level of performance in the low arousal group.

A further explanation for the conflicting findings came from research, which has indicated that concentration on a task might preclude even peripheral awareness of a competing task at the exact same instant in time. Thus, when music becomes a competing factor in relation to other tasks, the music may be phased out of awareness (ignored) in order that the person can attend to the primary task (Geringer & Nelson, 1979; Greenwald, 1978; Madsen & Wolfe, 1979; Wolfe, 1980, 1982). Another explanation, which this research will explore, is the role of metacognition in mediating the effects of music on learning. Some research has focused on particular types of learning and studying tasks. This will be explored now.

1.8.3 Music and reading

Studies regarding the effects of music on reading can be divided into those examining the effects of involvement in or the use of music in developing literacy skills and those considering the effects of background music on the process of reading and students' understanding of text.

McDonald (1975) suggested that reading skills can be enhanced through classroom music experiences, involving singing, auditory discrimination, and coordination of oral, listening and even visual skills. It is argued that this is the case because music and singing - through the interconnected auditory and oral skills that are involved - can further support visual recognition/ pronunciation of letters, ameliorating reading. These suggestions are an expansion of Yaakob's (1973) ideas about the importance and specific role that music and singing hold in developing the skills involved in reading readiness, such as auditory and visual discrimination, direction, imitation, interpretation, voice expression and listening. Cohen (1974) underlined the significance of moving or dancing to a rhythm or song for developing the reading skills of young children. He postulated that it could be based on the excitement created by listening to and dancing to music, in its turn leading to increase auditory awareness and better reading and comprehension. Harp (1988) argues that music and singing readily fit the needs of the whole language approach to reading instruction, and she provides a five-step method for using music to teach reading.

Lloyd (1978), and O'Bruba (1987), referred to the contribution of listening to and being taught music respectively, to the language reading abilities of elementary level pupils. Lloyd's observations led her to list musical activities that could help beginning readers to advance more securely. O'Bruba maintained that the essential similarity of deciphering letters or musical notes into meaningful sequences can become a transferable skill, from music to reading, since the underlying mechanism is the same. Similarly, it has been suggested that following written song lyrics while listening to music helps the word recognition process, increasing the speed of language reading (Klink 1975).

Douglas and Willatts (1994) found an association between rhythmic ability and reading in seven-and eight-year-old students; training in music was found an effective additional strategy for assisting children with reading difficulties. Ongoing research with dyslexic students has indicated that involvement in music may improve their temporal skills and ameliorate some of their difficulties (Overy, 2000).

Not everyone agrees that involvement with music can faciliate reading skills. As early as 1977, Groff argued against the suggested transferability of reading skills between music and language, as well as against the importance of listening ability, developed through music, for language reading. He argued that the developed skills are context specific, and highly specialised. This is supported by the work of Wheeler and Wheeler (1952) who examined the relationship between music reading and literacy skills. Pupils from the fifth and sixth grade took part in the study. Vocabulary and comprehension skills were assessed by the Progressive Reading Tests and music reading skill by the Knuth Achievement Test in Music. A low positive correlation between music reading and language reading was found indicating that the two are only loosely related. Taken together these findings are inconclusive. While there may be some benefit to literacy skills from learning to read music or being actively involved in making it, they are not strong.

A number of experiments have been undertaken investigating the distracting or supporting effects that playing different kinds of music in the background can have on reading and understanding, as measured and expressed in various tests. The difficulty with comparing the findings of these studies is that there is no agreed rationale underpinning their selection of music. Some report playing background music, without specifying its nature or the terms used as descriptors give little indication of whether the music might be perceived as arousing or calming or of high or low complexity.

Hall (1952) investigated the possible uses of music in schools, and found that performance on reading comprehension tests was significantly improved when background music was playing. She required 7th and 9th graders to complete the Nelson Silent Reading tests, and observed that 58% out of 245 children showed an increase in their scores while listening to music. There were also 'settling down periods' at the beginning of the morning and afternoon sessions and a mid-afternoon fatigue period when music was of greatest assistance.

Her study also suggested that the major portion of the aid given by background music was an increase in accuracy and that those students who were 'below average in intelligence and achievement' benefited more from the presence of background music than those above average, suggesting that this could be because these students were more in need of an aid to concentration. In contrast, in a more realistic study, Mitchell (1949) found that more able students were less distracted by a background radio condition, which included either music or a variety show than their average or less able classmates were. A similar study involved intermediate level students being exposed to three auditory backgrounds while reading (no music, classical music, and rock music) (Mulliken, and Henk, 1985). The authors concluded that background music can affect comprehension during reading and that, for most students, rock music should not be played. Kiger (1989) found that understanding of a 1450 word passage on Japanese history was enhanced by low information load music as compared with no music or high information load music. Fogelson (1973) used light classical music in the background to explore performance of able and less able groups on the Iowa Test of Basic Skills. Both groups with background music performed worse than controls and the less able worse than the able. Popular and classical music and no music was used for examining the possible distracting effects of music on female students undergoing the form B of the Nelson Deny Reading Test (Fendrick, 1937, Henderson, et al., 1945). Classical music did not affect the students' performance but the popular music did so, significantly. The authors argued that this could be due to the fact that popular melodies are easier to follow, and thus more distracting. Taken together these studies suggest that in order to understand the effects of background music on task performance, the selection of the music used in research has to be based on clear theoretical underpinnings which can provide the basis for the development of ideas, replication and progression. This early research does not provide such a framework.

Some research has focused on the effects of music on speed of reading in addition to comprehension. Freeburne and Fleischer (1952) set up five groups of no music, semi- and classical music, popular and jazz music, totalling 283 participants. Music was played shortly before and during the test (Robinson-Hall test for reading ability). Only the jazz music group was found to read significantly faster than the controls.

The extent to which students are familiar with the background music and to which they normally listen to background music may be important. Hilliard and Tolin (1979) found that familiar background music enhanced reading comprehension in contrast to unfamiliar background music. Etaugh and Michals (1975) found that college students, who reported frequent use of background music while studying, were least annoyed, or obstructed by music, during reading comprehension tests. Preference for music while studying and subsequent tolerance to music while studying, was found to be stronger among male students while female students accustomed to silent background studying, performed better on the comprehension tests, during the no music condition.

In a more complex study, which investigated performance on two simultaneous tasks, Madsen (1987) found that differences in the loudness, tempo, and instrumentation (including vocal text) were, in that order more demanding. If the task became too demanding, it could be controlled by manipulating the volume level of the sound source or escaping from or avoiding that particular music or music environment.

Overall, this research indicates that in studying the effects of background music on task performance researchers must give clear indications of the nature of the music in relation to the theoretical position adopted. The work of Madsen suggests that where realistic listening situations are being considered, where music naturally changes in relation to timbre, volume, tempo, etc, specifying this may be extremely difficult.

1.8.4 Music and Writing

The use and effect of music has been studied in relation to writing. A very interesting theoretical suggestion (Karnowski, 1986) is that young writers utilise knowledge from other forms of communication, such as oral language, art and music, and drama in order to make sense of the writing process, and communicate their messages to the reader. The implied transferability of meanings and known facts from one system to another can be taken as the basis for the interaction of music and reading or writing. Other studies have taken different focus. Donlan has twice (1975; 1976) examined the effects of different types of music on spontaneous writing of high-school students. In the earlier study, 20 texts written by students while listening to classical orchestral and popular rock music were examined. Four musical pieces were used one familiar and one unfamiliar for each kind of music. The findings suggested that students tended to react against unfamiliar background vocal music while writing, and that background music created a trend towards inconsistent writing, whereas, the first of the four musical pieces established a pattern of influence unchanged by subsequent changes of music. In the second study, the length of texts written by students while listening to four musical pieces (two orchestral and two vocal ones, one familiar and one unfamiliar for each kind), was used as the dependent variable. The outcome of the study's first phase suggested that the quality and quantity of spontaneous writing were affected by different kinds of music, and particularly that unfamiliar vocal music decreased the quantity and quality of student writing. In the study's second phase, four vocal musical pieces were selected two in a foreign and two in the English language, an unfamiliar and a classical selection for each kind. English-language and classical unfamiliar songs inhibited more powerfully the quantity and quality of writing. The importance of the familiarity of the music or song is very strongly presented in this study.

From an experiment investigating the transferability of elements commonly found in all art forms into writing (Ball and Stafford, 1986), it was concluded that the use of music for stimulating creative writing increased the enjoyment and interest of the students-writers, resulting in better quality of fiction writing. Donlan (1974) supports the notion that the use of music by young students as a mean of self-expression can facilitate the use of writing for the same purpose, directly and through studying music as a form of literature. Cardarelli (1979) suggested that the increased mental imagery stimulated by music could affect writing skills.

The effect of music on second grade children's writing content was explored by Koppelman and Imig (1995). They used background music (classical, jazz, popular, or country) or silence while students were writing. The results showed that (1) students wrote more words under classical music condition; (2) there were fewer inconsistencies in writing when listening to jazz; (3) negative writing was greater for all music types than for the no music condition, and (4) popular music had a significant negative effect on students' writing, perhaps attributable to students' familiarity with it. A similar study by Bolwinick (1996) examined whether listening to a particular type of music would affect the spelling scores of first-grade students. She used classical music (Mozart), baroque music (Vivaldi), or symphonic music using Disney theme songs rearranged in the styles of the composers from other periods, and found that achievement was greatest when they listened to Mozart, rather than when they listened to Vivaldi or to the symphonic versions of Disney themes.

A recent study by Hallam and Godwin (2000) with 9-11 year olds introduced a new element. The students were asked to write an exciting story while listing to music previously rated as either calming or exciting. There was also a no music condition. In addition to an assessment of the performance of the children on the writing task they were observed while they were undertaking the task and asked questions about their perceptions of the music on their writing, whether it helped them, whether they liked it, how it made them feel and whether they were aware of it at all. The stories were marked in relation to the extent to which they: had a beginning, middle and end, were descriptive, were detailed, reached a climax, included surprise, unexpectedness or suspense, flowed, held attention, were exciting, and were confused or muddled because of grammatical mistakes. The results showed that there was a significant difference in overall scores between the three groups, with the children writing with the exciting music playing in the background performing least well overall (17.83) in comparison to the calming (23.72) and the control groups (22.47). Furthermore, pupils in the exciting music group asked more questions, were less focused in their work and their stories were more aggressive. The effects of music were not the same across the different elements of the task. The elements of the task which required creativity, planning and higher order cognitive processing seemed to be more disrupted by the exciting music than those which may have been over learned and have acquired some degree of automaticity. Observation of the children's behaviour supported previous work suggesting that the exciting music can lead to more disruptive behaviour. The children in that group appeared to find it more difficult to start the task, were more restless and fidgety, asked many more non-work related questions and finished their work earlier than the other groups. The calming music group were characterized by settling to their work more quickly, and working quietly and calmly. Behaviour in the non-music condition was mixed. It seems likely that there are considerable individual differences and these need to be explored in greater depth. The study also showed that the children' perceptions of the effects of music on their work were often inaccurate. If they liked the music they tended to perceive that it was helpful, if they disliked it they tended to see it as unhelpful. Most liked the exciting music, which in fact had negative effects on their performance. Their liking was almost certainly influenced by the fact that the exciting music was in a genre with which they were more familiar. This may have considerable implications for students listening to music when undertaking homework. They may enjoy the music but be unaware of its negative effects. The relatively young age of the pupils in this study may have been an important factor. Older students may have demonstrated greater accuracy in their perceptions of the effects of the music on their performance.

Overall, these studies claim that music can have strong effects, different in relation to the type of music (varying from classical music to rock and Disney themes), on the performance of the pupils (quality and quantity of the text, fiction writing, consistency, spelling), or on their behaviour (enjoyment, aggressiveness, etc).

1.8.5 Music and memory

Another group of studies has focused on tasks, which involve memory. Henderson, Crews and Barlow (1945) examined the effect of music as a source of distraction during the taking of a test. They concluded that the distraction effect of music depended on both the type of music and the complexity of the testing material. Mowsesian and Heyer (1973) studied the effects of music as a distraction on taking a test in 15 year olds. They divided the population into five groups listening to rock, folk, symphonic music, opera, and no music, tested them on mathematics, language and spelling, and asked them to complete a self-concept of ability scale. They found that music had no significant effect on performance. However, the great majority of students reported normally studying with some form of background distractor, e.g. T.V., radio, records. Both these studies focused on music as a source of distraction rather than a source for concentration. Hallam and Katsarou (1998) explored whether different kinds of music could facilitate memory. Learning and recalling words in sentences was explored in 11-12 year olds in three conditions, arousing/aggressive or calming/pleasing music as a background or silence. The results showed that there were highly significant differences between the three groups, with the pleasant-calming music group performing significantly better than both other groups. The unpleasant -aggressive music group performed significantly worse than the other groups. In this case music facilitated learning and recall. Taken together these studies suggest that the relative potential of the music to calm or arouse may be more important than its influencing task performance.

In a very different kind of study, where music was played prior to task performance, Morton, Kershner and Sigel (1990) studied the effects of music on memory and attention in 10-12 year old males. A verbal dichotic listening task (digits) was preceded by both exposure to music and exposure to quiet. Prior exposure to music increased memory capacity in free reports, i.e. name as many digits as you can and reduced distractibility on the directed-report task (report the digits you heard with the left/right ear). The results were interpreted within an arousal framework. Music may have increased bilateral cerebral arousal levels, possibly through the mediating role of the right hemisphere. Their study suggests that prior listening to music reduced distractibility. Where the participants were asked to recall digits from one ear only their performance improved with the music. This might be important for improving concentration. In other studies, where music has been presented concurrently to material to be remembered it has not facilitated memory (Furnman, 1978), paired associate recall (Myers, 1979) or phonological short-term memory (Salame and Baddeley, 1989).

Positive effects of music on memory have been observed in individuals with learning difficulties. Michel et al (1982) reported that music facilitated vocabulary gains in individuals experiencing difficulties with reading and Shelan (1981) reported that music facilitated paired-associate learning with learning-disabled subjects.

One of the issues for research exploring the effects of music on memory is the role of working memory. Working memory is used to process and temporarily store information (Baddeley, 1986; Beardsley, 2000). The more information that is stored the less it can be processed and vice versa. Baddeley (1986) has suggested that working memory is not a unitary structure and that it consists of a phonological loop (specialised for storing verbal information), a visual spatial sketch pad (specialised for storing visual-spatial information) and a central executive which co-ordinates the storage and processing of information in the two stores, including the integration of visual-spatial and verbal information. For instance, Salame and Baddeley (1983) showed that immediate memory for visually presented verbal material was disrupted by concurrent speech even when the speech was unattended and in a foreign language. As unattended noise does not produce this effect they suggested that both were being processed through a phonological short term store leading to disruption of the memory task.

Further research has shown that music, vocal and instrumental, disrupts short term memory performance for a sequence of nine digits presented visually. The effects were stronger for the vocal music (Salame and Baddeley, 1989). The effects of music on memory therefore depend on the nature of the task and whether it involves verbal material which is processed in the same phonological loop as the music. This effect is increased when the music also contains verbal material.

1.8.6 Music and foreign language learning

Failoni (1993) focused on the use of music in the foreign language classroom believing that music offers a unique approach to enhancing students' awareness of another culture, and can aid in the practice of communication skills. As music can inform listeners about the history, literature, and culture of a country, through songs, texts and in musical style, it can allow students to further their understanding of other societies representative of the target language. Lems (1996) examined the use of instrumental music throughout the English-as-a-Second-Language (ESL) curriculum. Similarly Fitzerald (1994) used music to teach ESL reading to limited -English-proficient elementary school students. Background music was provided during some science and mathematics activities. Some songs involved counting, spelling, and eventually, reading of lyrics. The exercises were found to be very useful in encouraging literacy skills, minimizing stuttering, and supporting participation of all students. Analogously Berger (1996) used music to enhance the enjoyment of literature in the French language class. In these cases music was used to facilitate memory through multiple coding.

1.8.7 Music and mathematics

Historically, there are many claims about the relationship of music ability and mathematical ability. Generally, the relationships are positive but low (Shuter-Dyson, and Gabriel, 1981). Goeghegan and Mitchelmore (1996) explored whether young children's involvement in a music program provided them with a conceptual foundation for mathematics. Working with pre-school children their results indicated that the music group had higher TEMA-2 (Test of Early Mathematics Ability-2) mean scores than children without musical experience.

There has also been interest in the extent to which background music can improve mathematical performance. Scott (1970) used four conditions: a) a normal classroom environment; b) introduction of background music into normal classroom environment; c) children seated in a three-sided booth; d) children seated in a three-sided booth with background music to explore the effects of music on performance in arithmetic. His results showed that pupil performance was improved following the introduction of background music into the normal classroom. Hallam and Price (1998) asked pupils aged 10 to 11 years to solve as many mathematical problems as possible in fifteen minutes. The mean for the number of problems completed for those listening to background music was significantly higher (34.9), than those without background music (27.3). While the music increased speed of work it did not increase accuracy. There was no significant difference in the number of correct answers.

Several studies have explored the effects of background music on the mathematical performance of pupils with learning or behavioural difficulties. Vernetti and Jacobs (1972) asked fifty-three pupils, aged seven to fourteen years with learning difficulties to complete 20 mathematical tests in five minutes. A classical music and a no-music condition were used during the mathematical problem solving. The results showed no difference of answers' accuracy between the two conditions. In contrast, learning disabled students increased their gains in mathematics, after one year in a programme involving music in the classroom (Schuster and Vincent, 1980). Music was used at the start and end of class to relax and calm the students, and students reported better feeling toward their education. The possible positive effects of music on behaviour and subsequent maths performance are supported by the work of Hallam and Price (1998). They used claming, relaxing background music to enhance the performance of children with emotional and behavioural difficulties. Performance on mathematics and rule breaking behaviour (such as addressing a teacher without first raising a hand and waiting to be spoken to, commenting to other children, leaving their seat without first gaining permission, hitting or making threatening gestures, making excessive noise non-verbally) were scored. The mean score for mathematics performance with background music was significantly higher (38.5) than without background music (21.5). In relation to rule breaking, the mean score for background music was lower (17.3), than without background music (21.2), but the difference was not statistically significant. Correlations carried out between the number of completed mathematics problems and the number of rule breaking incidents revealed a significant negative association, suggesting that the improvement in mathematics performance was related to the improvement in behaviour, which itself seemed to be related to the influence of the music.

Music has also been used to reward students doing well in mathematics. Miller, Dorow and Greer (1974) examined the contingent use of music and art for improving arithmetic scores, and concluded that the less preferred activity was effective as a reinforcer for arithmetic achievement, as were the combined activities that they tested. A study by Madsen, Dorow, Moore and Womble (1976) studied whether music lessons presented via television could affect a subject matter music score gain while also functioning as reinforcement for correct academic responses. Their results indicated that correct math scores increased as a function of the televised contingency for participants who were reinforced for correct academic responses, while correct responses did not increase for the control group. This study suggests that learning contingency can be designed to offer a learning gain in both the subject matter used as reward and the subject matter that it is intended to reinforce.

The findings from these studies suggest that performance on solving mathematics problems can be affected by having music playing in the background and that music can be an effective reward. The effects may be particularly strong with students with learning or behavioural difficulties.

1.8.8 Music and other subjects

The effects of music on performance in science have also been studied. As mentioned earlier, Savan (1999) found that while music by Mozart was playing in the background, blood pressure, pulse, and temperature decreased lowering body metabolism producing a 'calming' effect, which improved concentration and behaviour in pupils with learning and behaviour difficulties. Smith and Davidson (1991) studied the effects of music listening upon student achievement with seventh grade students, who listened to music while independently studying the earth-sun relationship. They concluded that there were no significant achievement differences among students who learned while listening to rock, classical, easy listening, or no music. These findings again suggest that it is important to identify the impact of the music on mood and arousal rather than differentiate it in relation to musical genre.

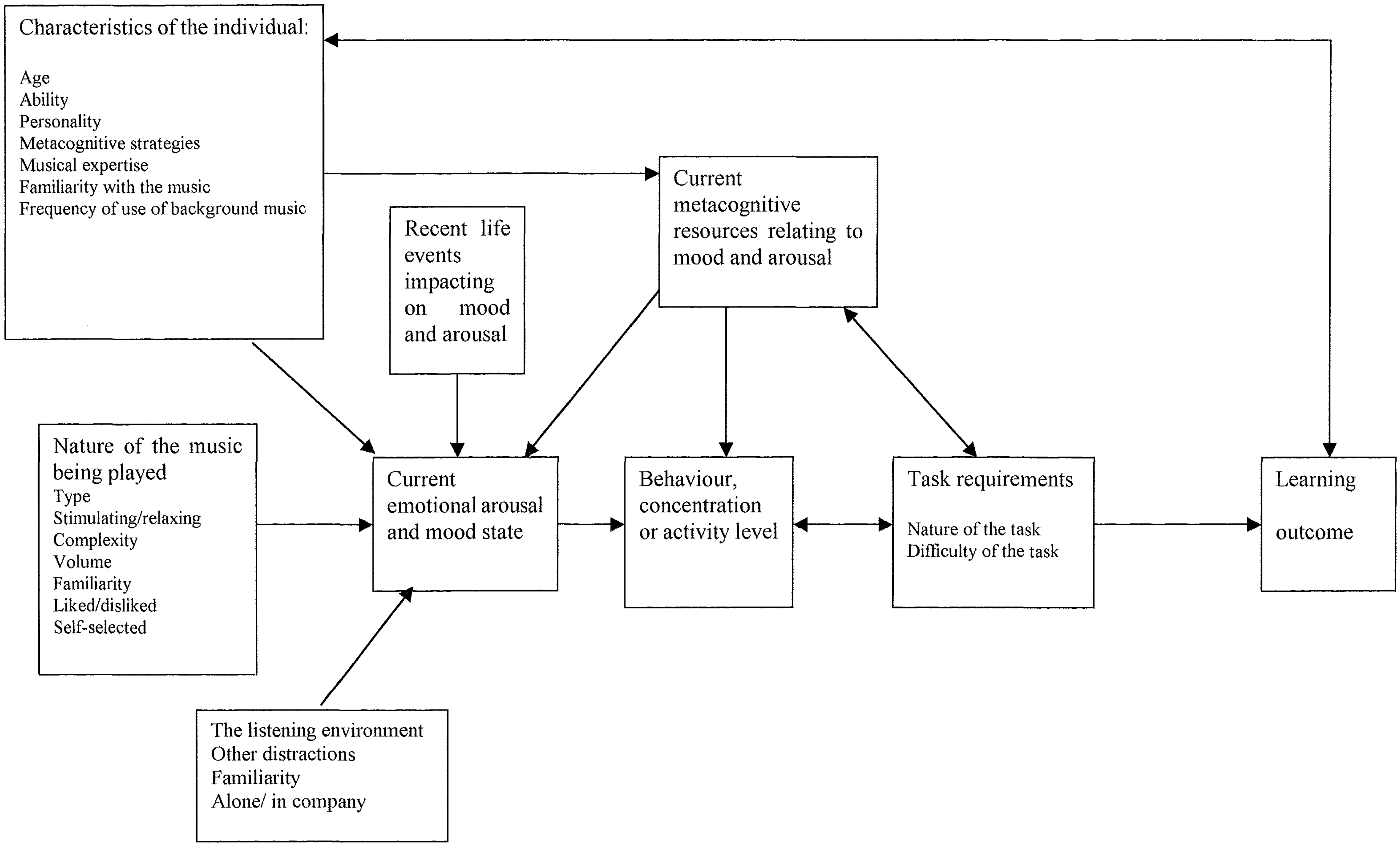
1.9 A model of the way music may affect studying outcomes

As the research outlined above suggests the effects of music on behaviour are not consistent across studies. They appear to be stronger and more consistent where pupils with behavioural difficulties are involved and when music, which is perceived as calming or arousing, is used, although in many studies musical genre rather than the mood, emotional or arousing effects of the music are reported. The effects of music on behaviour seem to be mediated by a complex range of factors, physiological, emotional, cognitive and metacognitive which interact together (Hallam, 2001). Hallam (2000) has developed a model, which attempts to draw together the possible factors, which may mediate the effects of music on any particular learning task (Figure 1). The next section describes the way the model, illustrated in Figure 1 (page 71), is seen to operate. It attempts to provide a framework for exploring these complex interactions. Firstly, the nature of the music itself may be important: the type of music, e.g. classical, popular; vocal or instrumental; whether it is stimulating or relaxing; its complexity; the volume it is played at; whether it is familiar; liked; and has been selected by the individual listening to it or imposed by others.

The effects of music may also be mediated by the characteristics of the individual; their age, ability; personality; metacognitive skills; musical expertise; familiarity with the music being played; and the frequency with which they normally listen to music when they are studying. These are likely to influence their response to music. The current emotional arousal and mood state of the individual is also influenced by their individual characteristics and by recent life events. If an individual has suffered a recent bereavement of someone close to them this is likely to have affected their mood. In these circumstances listening to cheerful music may have little or no impact on that individual's experienced emotions. Previous research which has induced a positive mood state by other means than through music, has been found to facilitate performance on divergent, creative problem solving tasks (Isen et al, 1985; Isen, 1987) and increase helpful behaviour (Isen, 1970; Isen and Levin, 1972). Participants have also reported more satisfaction in performing a task (Kraiger, Billings, and Isen, 1989).

The environment within which the studying is taking place is also likely to be important. This has not been considered by research to date. For instance, whether the individual is listening to the music alone or with others, whether the environment is familiar, or whether there are distractions in the environment may all mediate the effects of the music on studying. The characteristics of the task itself are also important. What is the nature of the task? Does it involve writing, reading, memorizing, etc? What is the nature of the processing it requires? How difficult is it? How long will it take to complete it? The nature of the task will also influence the behaviour, concentration and activity level of the person undertaking it. If the task is perceived as tedious or boring then it will be difficult for the individual to concentrate. If it is very interesting then concentration is less likely to be a problem. The

Figure 1: Model of the effects of background music



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Yerkes-Dodson law, as mentioned earlier, states that the arousal level of the individual increases performance up to an optimal level beyond which over arousal leads to a deterioration in performance. The law also states that the deterioration occurs more quickly when the task to be performed is complex or under-learned. A simple task will require a higher level of arousal for concentration to be maintained. Stimulating music is expected to increase arousal and improve performance on simple tasks but if the task is complex the level of arousal may become too great and performance deteriorate. This relationship is further complicated by the fact that arousal levels may be linked to personality factors (Eysenck, 1967). Introverts have higher levels of arousal than extroverts. They are therefore more susceptible to over arousal. Arousal levels are also responsive to a range of environmental stimuli and are therefore not consistent over time. The effects of music on behaviour and studying are all likely to be mediated by these factors. This has implications for the adoption of relevant support strategies and the level of the individual's metacognitive skills.

In addition there is the question of whether verbal reports reflect actual behaviour. When Wundt established the first psychology laboratory in Germany in 1879, introspection, undertaken by highly trained observers who reported the contents of their consciousness under carefully controlled conditions, provided the basis for theory development. Watson (1920) in the USA attacked this approach arguing that to understand human behaviour required observation of that behaviour. Any attempt to understand conscious states or mental operations was seen as inappropriate as objective data could not be gathered. Since then there has been a continuing debate regarding the extent to which data obtained from verbal report are reliable. In the case of the effects of music on studying this is a particular problem.

While small scale experiments can provide objective measures of musical effects they do not enable access to large samples.

The model suggests that music has direct effects on mood and arousal through primitive brain mechanisms, which operate with little conscious cognitive control. However, these effects may be mediated by cognitive and metacognitive processes. If this is the case, we would expect that the effects of music would be more powerful on those whose metacognitive skills were relatively undeveloped, e.g. those with Special Educational Needs and young children. As we saw in earlier sections there is some evidence, which lends support to this view. Previous explanations of the effects of music on learning and behaviour have tended to look for univariate explanations in terms of arousal, mood, and distraction reduction or, more recently the priming effects of music on particular parts of the brain, which may assist in the performance of some tasks. The interactions between physiological, emotional, cognitive and metacognitive factors have tended to be ignored. The model sets out to redress this.

1.10 Statement of the Problem and Research Questions and Hypotheses

As the literature review indicates, the effects of music on a variety of educational tasks have been researched. Much of this early research did not specify the nature of the music played and its expected effect on the learner. As a result many of the findings are contradictory and difficult to interpret. Very little research has acknowledged the role of the learner and their individual response to background music and has ignored the possible impact of metacognitive factors. Where students' perceptions of the effects of music on their completion of a task have been explored there has been a mismatch between the actual effects and the perceived effects (Hallam and Godwin, 2000). However, the participants in this study were children aged 10-11 years whose metacognitive skills might be expected to be relatively undeveloped.

Research to date has also ignored the way students may use of music to aid studying in everyday circumstances. Previous research (Kotsopoulou, 1997) surveyed UK and Greek students and established that 63% reported listening to music while studying. The findings of that survey acted as the starting point of this research.

The aims of the first part of this research are to examine how the following are affected by the nationality, gender, age and musical involvement of the students:

1. The extent to which students listen to music in their everyday lives and in what circumstances.
2. The extent to which and in what circumstances students listen to music when they are studying.
3. The kinds of music students listen to when they are studying.
4. Students' perceptions of the effects of listening to music while they are studying.
5. The factors, which influence students' decisions to listen to music while studying.

The second part of the research will examine the extent to which students are aware of the effects of music on their studying. To address this question an experimental approach will be adopted.

CHAPTER TWO

METHODOLOGY PROCESS

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The aim of this research is to examine the perceived use and effects of background music on studying, in relation to differences in nationality, age, gender, and musical involvement.

The relative lack of recent studies focusing on whether individuals play music while studying may to some extent reflect the difficulties of undertaking research in this area. It is a sensitive area. People and particularly young people may not wish to discuss information about their private lives. Some young people may listen to music while undertaking private study knowing that their teachers and parents disapprove. This may make them reluctant to admit that they listen. Even if they are willing to report their listening habits they may be unable to explain why they use background music or what its benefits or drawbacks might be. They may not be aware of the effect that music has on them and on their studying. They may listen to music while studying, they may choose to play it while studying particular subjects, and not with others, they may chose one kind of music instead of another, but they may not know what is guiding these decisions. The processes involved may be outside of their conscious awareness.

Making a decision regarding the most appropriate methodology for this study proved to be difficult since the questions to be raised were personal. Several research methods and techniques presented themselves. The possibilities, which seemed most appropriate, were: diaries, interviews, questionnaires or experiments. The first issue in selecting the methodology was the need for the research to reveal and provide detailed information about the kinds of music listened to.

The adoption of a *diary* technique would have enabled a detailed account of the kind of studying that students undertake while listening to background music and the kind of music that they listened to, but it would not have been a good technique for exploring the perceived effects on them or their studying. The intention in keeping a diary would be to obtain a daily or even an hourly record of the use of music in the respondent's lives and in particular in relation to studying. While diaries were in many ways the best methodological approach to explore this issue since the information to be collected was personal, there were a number of possible problems. Oppenheim (1992), discussing funded research pointed out that the technique is expensive, difficult to design and to place, and hard to analyse. He suggested it should only be used when the necessary information could not be obtained in any other way. There is also the danger that the respondents' interest in writing up the diary will cause them to modify the behaviour, which is to be recorded. If for example they are completing a week's diary of their music listening behaviour, this may cause them to engage in "duty listening" in order 'to have something to record', or they may listen to what they perceive to be 'better' types of music in order to create a more favourable impression. Diaries also demand a major commitment of time from those completing them and with a sample of teenagers this was felt to be problematic.

An alternative methodological option was to undertake exploratory interviews (as a first step) which would provide information to enable detailed questionnaires to be devised which would be used to undertake a survey. The interviews would explore the kind of music listened to, the reasons for listening, the types of studying being undertaken, when the music was played, and the perceived effects that the music had on studying. The data from the interviews could then be used to develop questionnaires. The use of questionnaires would allow greater anonymity for the respondents. This anonymity and the impersonalized way of extracting information was expected to encourage the respondents to express themselves freely.

Undertaking a survey would also enable data to be collected from a large sample. This was particularly important given the aim to explore gender, age and cross cultural differences. To ensure relevance, the questions to be included in the survey would be derived from exploratory interviews.

While a survey is appropriate to collect data from a large sample of students regarding their listening habits while studying it does not lend itself to exploration of the actual rather than perceived effects of music on behaviour. To explore this it is necessary to undertake experimental studies, which enable tighter control of independent variables and careful measurement of learning outcomes. For this reason, in addition to the survey it was proposed to undertake an experimental study with a small group of students to explore the actual rather than the perceived effects of different kinds of background music on studying. This would provide an opportunity to validate at least some aspects of the findings from the survey.

The research plan was to:

- undertake exploratory interviews
- devise questionnaires based on the information emerging from the interviews

- undertake a survey using the questionnaires
- undertake an experiment, to provide partial validity for the survey findings.

2.1 Methodological issues regarding exploratory interviews

Previous research addressing the issues of listening to background music while studying, e.g. the effect of music on writing (Dolnan, 1975, Koppelman and Imig, 1995), reading (Fendrick, 1973, Hall, 1952), foreign language learning (Failoni, 1993), and mathematics (Scott, 1970, Madsen, Dorow, and Womble, 1976), in ordinary and special educational needs students has tended to ignore the students' perceptions of its effects and their feelings about the music.

To begin to establish the nature of the types of questions, which would be included in the questionnaire and subsequent survey, a semi-structured interview methodology was selected. This would give participants the chance to describe in depth their studying habits in relation to music listening. The semi-structured interview, according to Cohen and Manion (1985), provides a virtually unique technique to open up what lies behind participants' actions. The participants have the chance to go into great depth about the issues raised. Open-ended questions are flexible and also allow the interviewer to probe when necessary, or clear up possible misunderstandings. Furthermore, open-ended questions allow freedom and spontaneity in the answers, and are useful for testing hypotheses about ideas or awareness. However, semi-structured interviews are not without their problems. They are time consuming, costly of interviewer time, and the process is slow and may be unreliable. Overall, they demand more effort from respondents

(Oppenheim, 1992). In relation to this research, since the issue was personal, open-ended questions were expected to encourage co-operation and help establish rapport. They were also expected to result in unexpected or unanticipated answers which would suggest hitherto unthought of relationships or hypotheses which would be extremely valuable for the purpose of the current study, although the research being exploratory, explicitly departs from certain structures of the hypothetico-deductive model (Kirk and Miller, 1986, p.17).

2.2 Sample for the interview study

The sample for the interview study consisted of students of different ages and nationalities. The interviews were undertaken with students aged between 18 and 25 because it was believed that they would be more able to access their feelings and introspect about the possible effects of music, than younger students, and also because they would be able to retrospectively consider their behaviour when they were younger, this would provide information about music listening habits, across a range of ages. The 14 students interviewed were seven Greeks and seven British, half of them undergraduates and half postgraduates.

2.3 Procedure

The interviewer began by establishing a rapport with the interviewees. Each participant was informed about the aim of the study and was assured of confidentiality. A planned interview schedule was prepared but sometimes the order was modified depending upon the researcher's perception of what seemed most important in the context of the 'conversation'. The wording of questions changed sometimes depending on the links being established with the previous information. Particular questions were left out when they seemed inappropriate for a particular interviewee. All the interviews were taped recorded.

2.4 The questions

The respondents were asked to describe a typical day in their life from waking up in the morning to going to bed at night and the activities that they would be involved in. They were then asked to describe which of these activities was likely to be accompanied by music. Further questions explored the kind of music, if it was their favorite music, if it was the only kind of music that they listened to, what kind of music they never listened to and why. The questions then, became more focused on the music used in their studying: if they listened to music while studying, what kind of music, when they began listening to music while studying, their parents reactions to this, if there were any specific subject domains when they always listened to music, and others when they did not. They were asked the reasons for listening to the music, the perceived effects of the music on their studying: whether they thought it helped them, or interfered with their work, and when. The questions were developed to expand previous responses and participants were asked for clarification, e.g. 'can you give more details about that?', or 'do you know why this is?', or 'why do you think that?'. This allowed the interviewer to gain greater insight into the issues raised.

2.5 The results of the interviews

It became clear from the transcriptions of the interviews that the students felt uncomfortable talking about listening to music while studying, which in most cases they had been doing for several years. They seemed to have taken it for granted. Most could not explain why they played music in the background. A typical response was *"I don't know why"*. This was despite the fact that background music played an important role in their studying. They could, for instance, describe the kinds of music listened to, the kind of studying they were undertaking when they listened to music and when they did not, but they seemed unable to verbalise why they listened to the music at all.

Music had a strong influence in their everyday lives: they listened to music when they woke up, when they went to sleep, when they took a bath, while they were eating, or traveling. They also listened while they were reading, writing, or doing course work, but less when they were revising for exams or memorizing texts. They started listening while studying when they were around age 13. Their families did not approve. They did not know why they listened and whether it helped them or not, interfered or promoted concentration.

Typical responses were:

'I listen to music when I wake up, when I go to sleep, and turning the music on is the first thing that I do when I enter my room. I started listening to music while studying when I was 12-13 years old. I think it was because I was bored at school, and studying. By that time I thought I had had enough of the school, and music was the only thing that kept me going. By having the music playing I was not bored: I sang and wrote my homework. I do not know what music did to me or my studying. I have no idea. I know that it helped me concentrate, but the singing along is not concentration, is it? I do not know. I was listening

to pop music at that time, all the charts you know. My taste has changed now. I still listen to music while studying. The situation is different now. Then, studying was just because I had to, today it is because I want to. Now I listen to classical music, or instrumental music when I am studying. I can't concentrate with the "charts" like I used to. This is strange isn't it. Don't ask me why, because I do not know why. Do you?'

This participant knew when he started listening to music, why he did it, the kind of music that he listened to, but he did not know why he was doing it, or what effect it had on him and his studying. Initially the music was reported as helping concentration, but this statement was withdrawn after consideration.

Most of the interviewees made similar responses although there were frequent '*don't know responses*'. Another student said: '*I listened to music with everything, from the moment I woke up till the time I got to bed, and you know what kind of music? Heavy -metal. Those days... My parents were mad... "How can you listen to that thing and study?" they used to say. I do not know how. This was my revolution. Now I never listen to music while studying, and I can't even stand heavy metal music*'.

A younger student said: '*I listen to music while I am studying. Sometimes I do, when I write or read texts. I can't concentrate when I am reading for exams for example. I prefer the radio, Melody FM, they have slow songs, blues, and not rock and pop songs. I find them distracting: I can stand up and start singing. They are fine for my free time but not when I am studying*'. An older student said: '*I heard from my friends when I was in school that they listened to music while studying, and I was surprised. I never did that. It was out of the* *question, for me to have the radio in my room while studying. My parents would not approve of that. I think... Now, I can do nothing without music. I have music on even when I have a bath*'. Finally, a Greek girl said: '*I loved music, I was studying music since I was eight, and I believe that I had music in me. I liked listening to music while studying and I did it since I was 10, but my parents did not approve and they used to say that I would fail in school if I continued. So I had it on, and when I heard them coming near my room, I used to turn it off. This way, I did not concentrate at all, because I was trying to listen for their steps...*'

The other interviews were similar to these examples. The interviewees admitted listening to music while they were studying but they were unable to articulate clearly why or what the effects of music were on them and on their studying. However, their statements about feeling more relaxed, focused, or involved in their learning provided guidelines for the questionnaire. These were supplemented by statements derived from previous research and current theories, of how music affects behaviour and learning.

CHAPTER 3

MAIN STUDY

DEVELOPMENT OF THE QUESTIONNAIRE

CHAPTER 3

MAIN STUDY: DEVELOPMENT OF THE QUESTIONNAIRE

The items of the questionnaire were derived directly from the responses given in the interviews, and supplemented with statements derived from interpretation of current theory and previous research studies. The development of the questionnaire will be discussed in relation to each section.

3.1 The questions

The questionnaire was divided into six sections. There were 77 questions in total (a complete questionnaire is included in the appendix).

1.The first section required the respondent to provide information about their gender, age, nationality, and their active involvement in any musical pursuit, e.g. playing a musical instrument.

2. The second section included questions about the role of music in the student's everyday life: whether they listened to music in their free time, when they were a child, when they woke up, when they went to sleep, when they were at home in the morning or evening, when they were eating, taking a bath or traveling.

3.The third section included questions relating to listening to music while studying. Respondents were asked if they listened to music while they were studying and especially when: they were revising for exams, writing, memorizing texts, reading, doing course work, editing work previously completed, solving problems, developing ideas, thinking or learning a foreign language. Questions were also posed about listening to music while studying their most or least favourite subject.

4. The fourth section explored issues relating to the perceived effects of music on them and their studying: whether they believed that music helped them concentrate, kept them company, alleviated their boredom, relaxed them, helped them learn faster, interfered so that were unable to concentrate, interfered because they sang along, interfered because it made them too aroused.

5. The fifth section explored the different kinds of music, which they listened to. This was divided into two parts, those relating to the characteristics of the music and those relating to particular musical genres. The first part asked if they listened to familiar music, music with a fast tempo, music with a slow tempo, songs, loud music, instrumental music, calming music, or arousing music. These disciplines were derived from the interview data. The second part explored particular musical genres, e.g. *blues, classical, country, easy listening, folk/world music, reggae, rock, pop, soul, dance, jazz, gospel.* The option of other was included and respondents were asked to specify whether they listened to a particular composer, a group, or an artist. Finally in this section they were asked whether they listened mainly to recorded music or the radio.

In this section the questions about the musical genres varied from country to country. The types of music that are indicated with the italics in the paragraph above were included in the questionnaires for the UK and US students. In the questionnaire for the Greek students the kinds of music were *blues, classical, country, reggae, rock, pop, soul, jazz, Greek pop, Greek folk, Greek orchestral, and Greek popular music.* For the Japanese, the types of music were *blues, classical, enka, new music, folk songs, kayoh kyoku, rock, commercial songs, TV theme music.*

Defining musical genres is problematic. Within any single genre there may also be many subdivisions. For instance, classical music includes Bach (from the baroque period), Mozart (from the classical period), Debussy (an impressionist composer), etc. In the same way there are different types of pop, rock, or soul music. The solution adopted was to utilise the categories which appeared in the record shops of each country. This ensured ecological validity and was also likely to provide respondents with categorizations which were familiar to them. The categories were established through observing and noting those used in each of three large record shops in the countries being studied. The category 'other' was included to allow for the omission of any genre not represented in the questions.

6. Section 6 explored issues relating to decisions taken with regard to listening or not. Questions included: "I listen to music while studying: when I am happy, when I am bored, when I like/ don't like the subject, when I am disturbed by other noises around me"; "I turn of the music when: I can't concentrate, it makes me nervous, I am unable to learn, someone suggests I should"; "I choose to listen to music because I am influenced by: the type of music, the subject I am studying, the nature of the subject, the mood I am in". The final set of questions concerned age of starting to listen to music while studying, whether their family approved, whether they studied alone or with others and the impact of this on

listening to music and whether they used a 'walkman'.

The questionnaire was devised and written in English. It was translated into Greek and Japanese. To ensure equivalent meaning of the statements the questionnaire was initially translated into the other languages. Teachers of Greek and Japanese then translated it back to English. This rigorous procedure ensured confidence in the equity of meaning of the statements. Finally, they were checked by Greek and Japanese teachers for accuracy of the language used and to ensure that the statements would be easily understood.

It was decided to use rating scales (frequency inventory) rather than yes/no responses. The assumption underlying this was that they would be more sensitive indicators of the extent to which statements were applicable to the respondents. The use of rating scales (five options were provided: always, frequently, occasional, rarely, never) is known to assist in developing more valid measures, increasing reliability, and enabling greater precision (De Vaus, 1996).

The problem that arises with the use of rating scales is how the data obtained from them should be treated. It qualifies as ordinal or interval measurement, respectively, so non-parametric methods are more applicable than parametric ones in the analysis of such data. However, Pearson r, analysis of variance, and other parametric techniques are often used in analysing ratings. Because these statistical procedures are robust- that is, affected very little by minor violations in the assumptions underlying them- there is usually no great harm in using interval-level procedures with ordinal-level data (Aiken, 1996).

3.2 Pilot study

The aims of the pilot study were:

a. to check the wording of the questions:

- to ensure that the questions could be easily understood

- to improve the wording of the statements if they were unclear

b. to test the clarity of the statements,

c. to check the clarity of instructions,

d. to check the translation of the questionnaire,

e. to check the time need to complete the questionnaire ,

f. To check if the layout of the questionnaire was clear and attractive.

3.2.1 Sampling

Eighteen students were used for the pilot study. Since age was a factor, it was decided to select six students from each age group (12-13, 15-16, and 20-21) and two students from each nationality (English, Greek, and Japanese) studying in the UK. In total nine males and nine females took part in the pilot study.

3.2.2 Procedure

The pilot work was carried out at an individual level to provide an opportunity to explore and clarify misunderstandings and confusions. The respondent was asked to complete the questionnaire on his or her own. The respondent was told to feel free to report all words or sentences, which were unclear. These were noted by the researcher. Issues emerging from this were discussed after the completion of the questionnaire. There was no time limit on the completion of the questionnaires. All the comments and suggestions made by participants were entered on the questionnaire, next to the relevant statement. At the end of the process the researcher asked the respondent whether she or he felt that the questionnaire had enabled him or her to communicate all relevant information and whether she or he perceived the questions appropriate.

3.2.3 Outcomes of the pilot study

The pilot study revealed that the form of the questionnaire was confusing. When the statements shared similar beginnings, e.g. I listen to music when I -wake up, -go to sleep, etc., the students tended not to read the first part of the question. To overcome this, the early statement was put into bold and italics and the last part of the sentence was inserted with a small line in front of it.

The categories of studying were clear to the students, but some respondents were not aware of all genres. A decision was taken to include these as the students could report 'never' in response to these statements if they were unfamiliar with the type of music.

The question relating to sharing a study room and the effects this may have had on listening was in some occasions not applicable. The question was included in the final version of the questionnaire as it enabled validation of whether they studied alone.

3.3 THE MAIN STUDY

The survey aimed to identify whether students of different ages, gender, nationalities and levels of musical involvement, listened to music while studying, what kinds of music they listened to and what they perceived to be the effect of this on their learning.

3.3.1 Aims of the main study

The aims of the survey were to:

- Identify patterns of listening in every day life,
- Identify patterns of listening in studying,
- Identify musical styles that were listened to,
- Explore beliefs about the effects of listening to music on studying,
- Explore the factors effecting listening to music while studying.

Differences in the above were to be considered in relation to nationality, age, gender and active involvement in music making.

3.3.2 Sample

Earlier work (Kotsopoulou, 1997) indicated, that "age" was a factor that was important in whether students listened to music while studying, in the kind of music they listened to, and the reasons they reported for listening. For this reason, three **age groups** were chosen: second year in high-school (twelve years old), last year in school (16-18), and second year in the university (20). The age range in the second age group was wider because in the countries studied entry to College was at different ages. The underlying principle was that this group should include students who were about to take exams for entering College or University. In the UK this age is 16-17 and in Greece 17-18. So the second age group includes three ages and not one. Table 1 gives the breakdown of age and nationality

	UK	**GREECE**	**JAPAN**	**USA**	**TOTAL**
12-13	50	50	50	50	200
16-18	50	50	50	50	200
20-21	50	50	50	50	200
TOTAL	150	150	150	150	600

TABLE 1 :Participants' distribution in age and nationality

The second factor was the **nationality** of the students. It seemed important to select students from countries with different cultural, educational and socio-economic histories and with different musical cultures.

Four nationalities were identified for study. The selection made was partly pragmatic, i.e. what was practically possible, but an attempt was also made to select nationalities, which exemplified different musical traditions. Those included were the USA, the UK, Greece and Japan. The USA was selected because being a relatively 'young' country, it lacked a long, well established musical tradition; it was the birth place of modern popular music, i.e. rock and roll and its world wide political and commercial influence has provided it with a key role in the music industry. The UK, although it shares much of its current popular music with the USA is part of a long European musical heritage. The music of Greece links the cultures of East and West. Although it is a European country people have maintained their own musical traditions despite the influx of Western 'pop' music. Japan offers a completely contrasting cultural setting, with its own traditional music and only relatively recent Western influences.

The third factor influencing the selection of the sample was **gender.** Although overall the students were randomly selected an attempt was made to recruit similar numbers of males and females in each age group and from each nationality. Tables 1,2a and 2b give a breakdown of the make up of the sample.

	UK	**GREECE**	**JAPAN**	**USA**	**TOTAL**
MALE	72	79	73	76	300
FEMALE	78	71	77	74	300
TOTAL	150	150	150	150	600

TABLE 2a :Gender distribution in each nationality

	12-13	**16-18**	**20-21**	**TOTAL**
MALE	103	107	90	300
FEMALE	98	96	106	300
TOTAL	201	203	196	600

TABLE 2b :Gender distribution in each age group

Fourthly, the sample was divided on the basis of active involvement in making music; i.e. did the participants play a musical instrument or sing in a choir, or group. The questionnaire provided them with a checklist of musical instruments to tick.

Overall, 150 students from each country participated in the study. There were fifty from each age group. The students came from major (in most cases the capital) cities in each country. They were selected from schools and universities, which had a broad intake representing a wide range of socio-economic status. Schools or universities were contacted and permission was requested for the study to take place. Where agreement was reached a visit was made to the institution. In some cases, this was undertaken by a colleague of the researcher as it was not practical to travel to the countries in person. The questionnaire was distributed, completed and returned on that visit. In this way 100% return rate was achieved. The students were co-operative and as the questionnaire took only 10 minutes to complete all questions were responded to.

3.3.3 Procedure

The procedure was similar in every country: The schools and the universities were selected from those in the major cities and personal contact was made with the Head of the School or the University and an appointment made to administer the questionnaire during class time. Students were given the questionnaires and had 15 minutes to complete it. In Greece and USA, written permission had first to be obtained from the parents. In UK and Japan, that was not necessary. On the day arranged to distribute the questionnaires the students were told about the nature of the research and then were given the questionnaire. They were informed that it should take them approximately 10 minutes to complete. In practice there was no time limit.

The findings from the study are reported in Chapters 4, 5, 6 and 7 respectively in relation to cultural differences, gender, age, and involvement in playing a musical instrument.

CHAPTER 4

FINDINGS FOR NATIONALITY

CHAPTER 4

FINDINGS

The results of the questionnaires were analysed using Multivariate Analysis of Variance and post hoc Bonferroni tests, to explore differences in relation to nationality, age, gender, and musical involvement. Each variable where the rating scale was used was coded from 1 to 5. One signified the response always, 2 frequently, 3 occasionally, 4, rarely, and five never. Although, the data is ordinal, in that exactly the same mathematical distance cannot be guaranteed between each category of response, it is common within psychology and education to treat rating scales as if they were interval level data. In addition, analysis of variance is extremely robust (Aiken, 1996). For these reasons analysis of variance procedures were adopted. The overall differences in relation to nationality, age, gender, and musical involvement for each single variable are reported first. The details of post hoc Bonferroni comparisons are given in appendix 2.

NATIONALITY

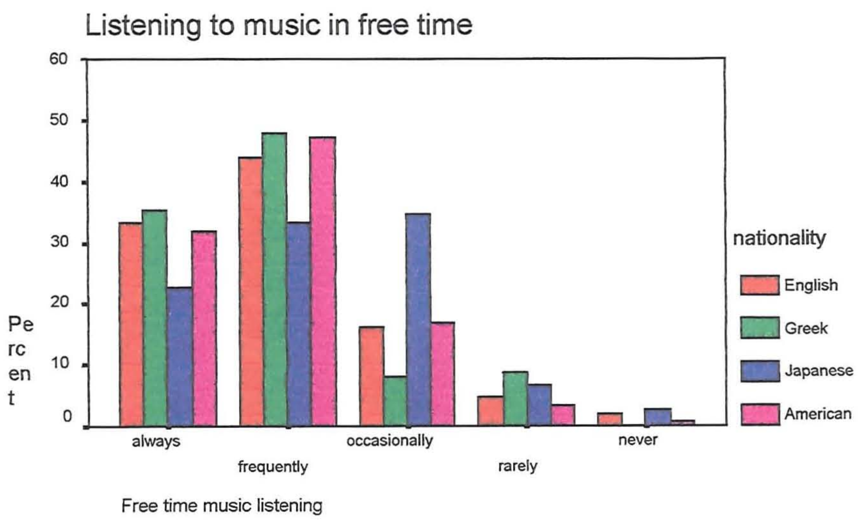
4.1 Music in everyday life

This section explores the differences in listening habits between the students of different nationalities. The questions were designed to provide a framework within which to embed the analysis of the questions regarding listening to music while studying. Where significant differences were found in relation to listening to music in everyday life, they were consistently between the Japanese and the students of other nationalities.

4.1.1 Listening to music in free time

The first question asked students to rate the extent to which they listened to music in their free time. Figure 2 illustrates the frequencies of responses in each category between the nationalities. The majority of the Greek students reported listening to music often (mean 1.9, SD .93). No Greek students reported that they never listened to music in their free time. In contrast, the majority of the Japanese students said that they listened occasionally. The majority of those who reported never listening to music in their free time were Japanese (mean 2.33, SD .99). The responses of the English and the American students were very similar (mean 1.98, SD .93 and mean 1.93, SD. 82 respectively). These differences were statistically significant ($F = 7.47$, $df = 3{,}596$, $p = .0001$). A post hoc Bonferroni test showed that the significant differences in means were between the responses of the Japanese students and all other nationalities. Table 3 sets out the means, standard deviations and statistically significant relationships for all the variables relating to listening in everyday life.

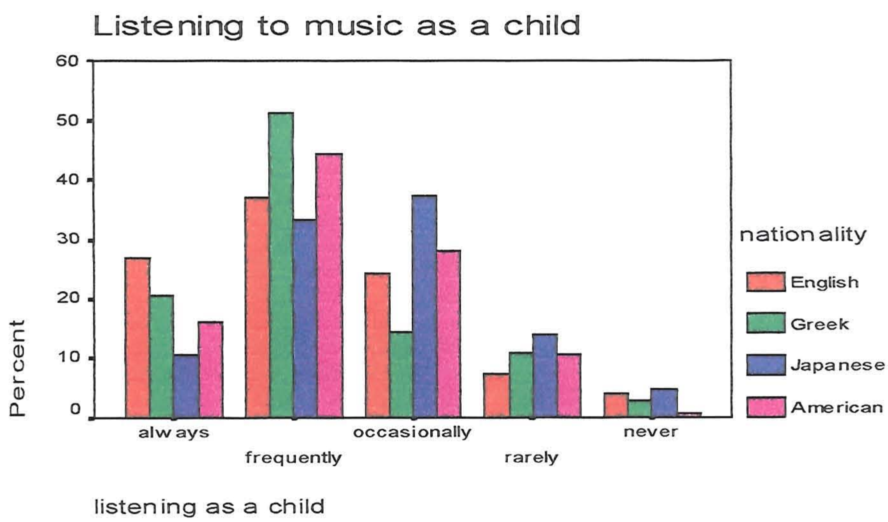
Figure 2



4.1.2 Listening to music as a child

The data revealed that the English (mean 2.24, SD 1.06) and Greek students (mean 2.24, SD .88) more frequently reported listening to music as a child. The majority of the Japanese reported listening as a child occasionally (mean 2.69, .SD 1) while the American students' ratings fell between these (mean 2.36, SD .9). A post hoc Bonferroni test revealed that there was a significant difference between the English, the Greeks, and the American ratings and those of the Japanese (F=7.5, df=3,593, p=.0001). The Japanese perceived that they listened to less music as children than all of the Western nations included in the study. Figure 3 sets out the frequency of each category of response.

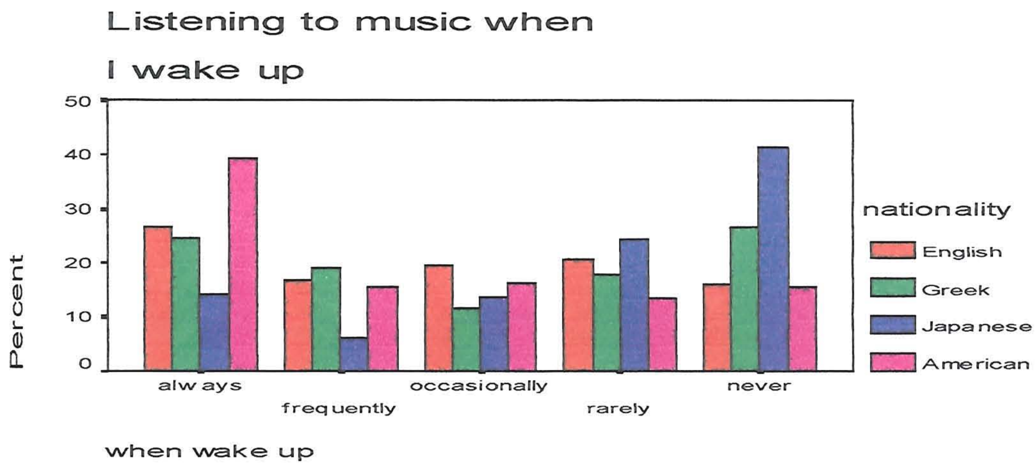
Figure 3



4.1.3 Listening to music when waking up

The pattern of student responses was different for this question. While the Japanese continued to listen the least (mean 3.73, SD 1.42), the Americans reported being the most frequent listeners on waking up in the morning (mean 2.51, SD 1.5). The responses from the Greeks (mean 3.03, SD 1.56) and the UK students (mean 2.83, SD 1.44) fell between these extremes. The multivariate analysis of variance revealed that the differences between the nationalities were statistically significant ($F = 11.6$, df $=3,586$, $p = .0001$). A post hoc Bonferroni test showed that the significant element was the difference between the Japanese and the other nationalities. Figure 4 gives the frequencies of responses in each category.

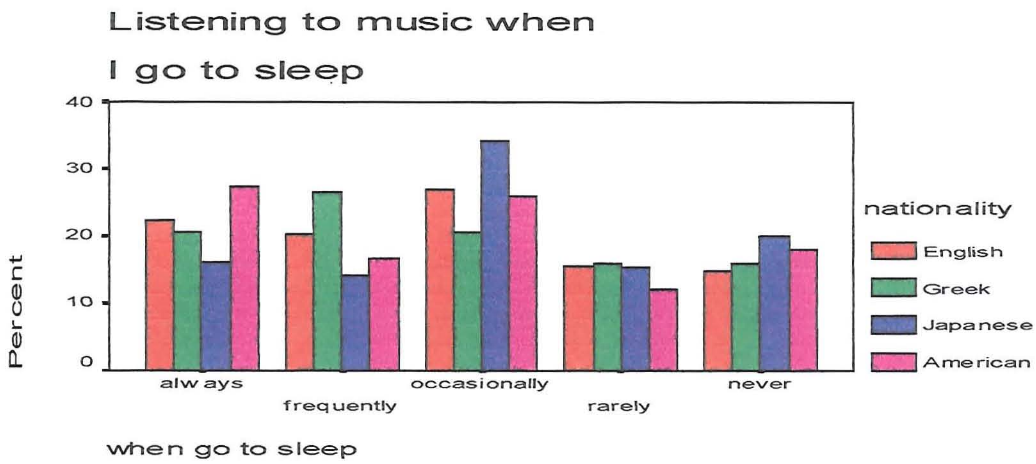
Figure 4



4.1.4 Listening to music when going to sleep

The responses to listening to music when going to sleep did not differ significantly. The mean scores of the Americans (mean 2.77, SD 1.44), UK students (2.8, SD 1.35) and Greeks (mean 2.8, SD 1.37) hardly differed at all. The Japanese listened less frequently (mean 3.09, SD 1,32) but this difference was not statistically significant. The frequencies of response in each category are presented in Figure 5.

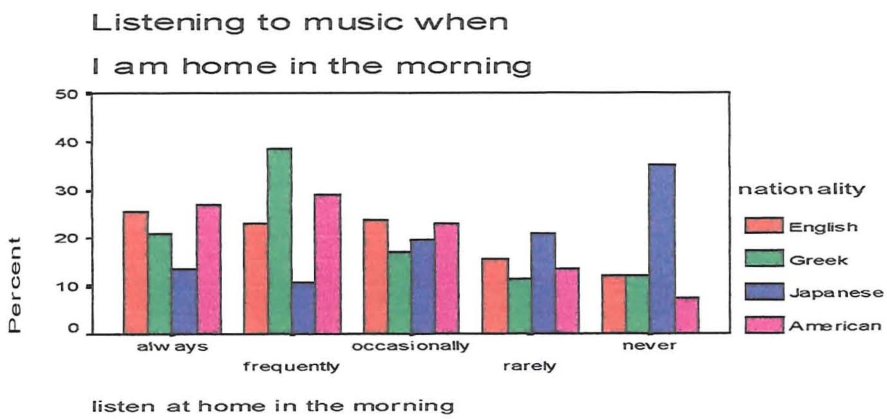
Figure 5



4.1.5 Listening to music in the morning

The Japanese students listened to music the least in the mornings following the pattern reported for waking up (mean 3.53, SD 1.41). This pattern was supported with the Americans being the most frequent listeners in the morning (mean 2.45, SD 1.23). The scores for the Greeks (2.55, SD, 1.28) and the UK students (mean 2.66, SD 1.34) fell between these extremes. The frequencies are shown in Figure 6. These differences were statistically significant ($F=13.9$, $df = 3,588$, $p = .0001$). A post hoc Bonferroni test revealed that the significant difference was between the Japanese students and the other nationalities as a group.

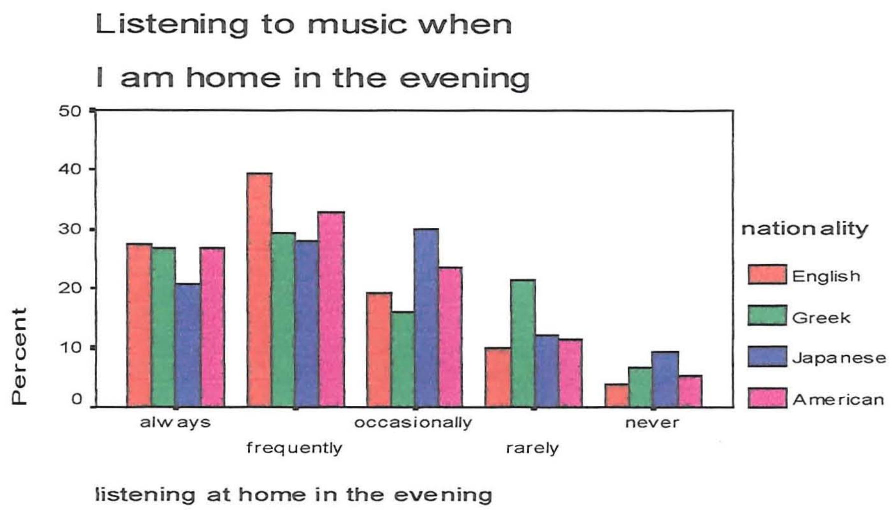
Figure 6



4.1.6 Listening to music in the evening

The UK students listened to more music in the evening than the other nationalities (mean 2.24, SD 1.08). Once again the Japanese reported listening the least (mean 2.61, SD 1.21). The Greeks (mean 2.52, SD 1.27) and the Americans (mean 2.36, SD 1.15) fell in between these extremes (see Figure 7). The differences were not statistically significant

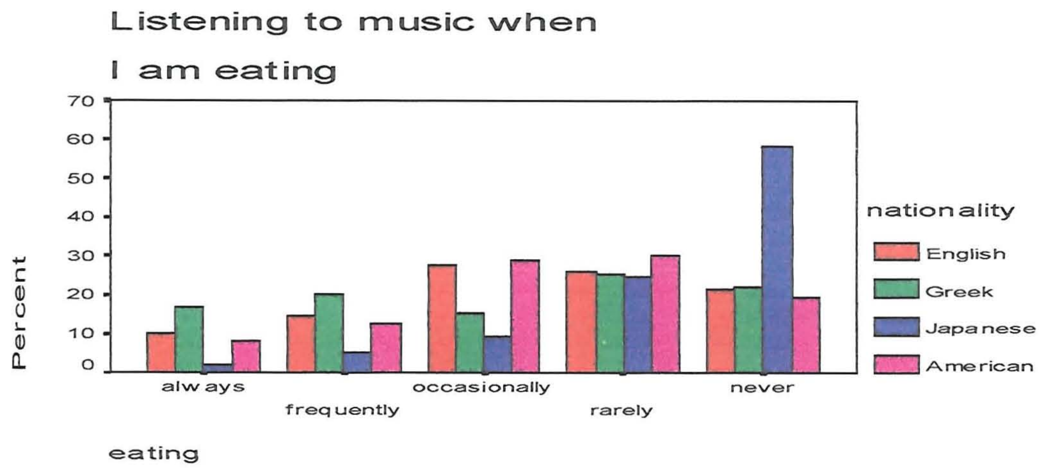
Figure 7



4.1.7 Listening while eating

Overall the Japanese students' reported listening to music very rarely while eating (mean 4.32, SD.99). Of the other students, the Greeks reported listening to music while eating the most (mean 3.16, SD 1.41). The American (mean 3.41, SD) and UK students' scores (mean 3.34, SD 1.25) fell in between these extremes. The differences were statistically significant (F= 15.3, df =3,591, p = .0001). The post hoc Bonferroni test revealed that the Japanese ratings were significantly different from all the other nationalities. The frequencies of responses are set out in Figure 8.

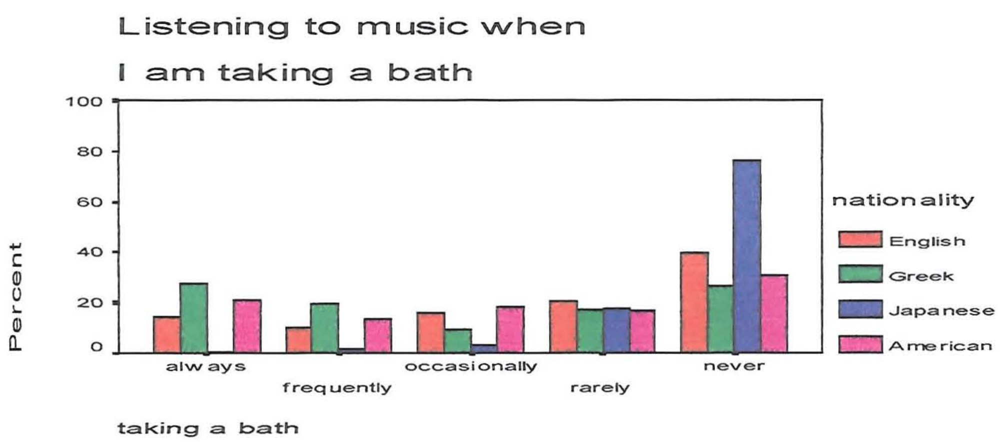
Figure 8



4.1.8 Listening to music while taking a bath

Listening to music while taking a bath was the least frequently reported listening time for the Japanese (mean 4.67, SD .7). The Greeks listened the most while bathing (mean 2.97, SD 1.59). The UK students (mean 3.61, SD 1.45) and the Americans (mean 3.23, SD 1.53) fell between these extremes. Figure 9 shows the distribution of frequencies. The differences between the extreme groups, the Japanese and other nationalities were statistically significant ($F = 28.9$, $df = 3{,}590$, $p = .0001$).

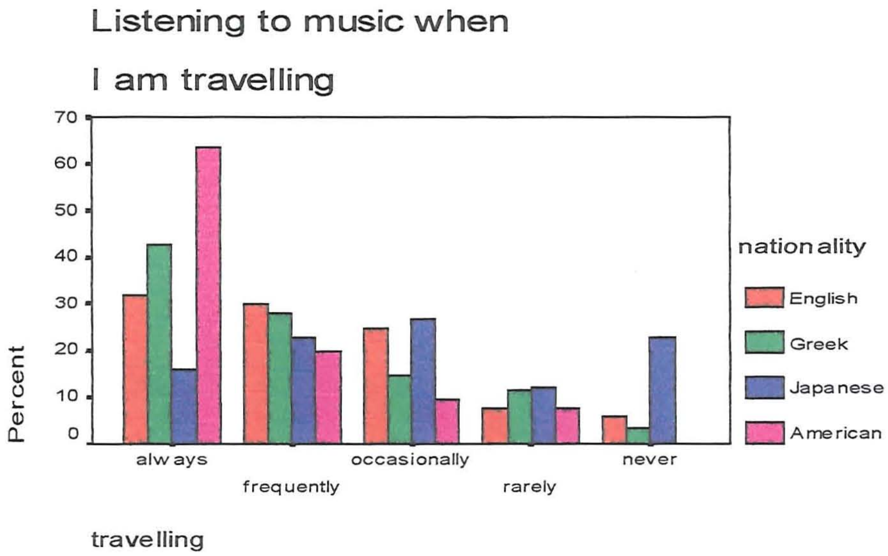
Figure 9



4.1.9 Listening to music while travelling

The Americans students reported listening to music more when they were travelling than all the other nationalities (mean 1.61, SD .93). The Greek (2.05, SD 1.15) and UK students (mean 2.25, 1.16) reported listening more when travelling than the Japanese students (mean 3.03, SD 1.38). The difference between the American and Japanese students is statistically significant. ($F = 28.9$, $df = 3,596$, $p = .0001$). Figure 10 gives the frequency of responses.

Figure 10



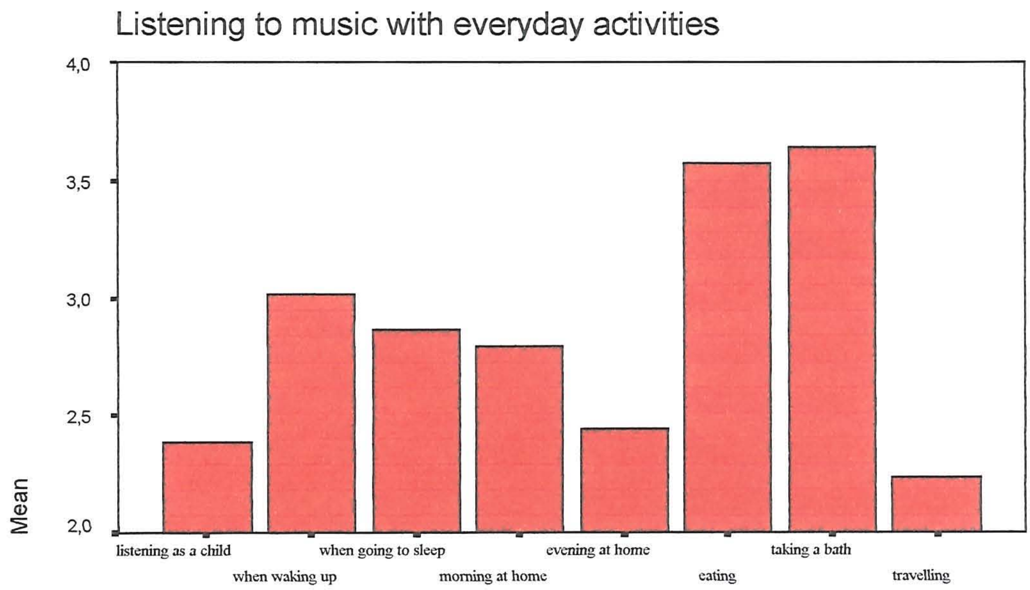
4.1.10 Summary of results for listening to music in everyday life

Table 3 provides a summary of the mean scores of all the nationalities for all the aspects of listening in everyday life that were explored in the study. Figure 11 demonstrates the overall means for all the nations combined and the details of the multivariate analysis.

Question	UK		GREECE		JAPAN		USA		Mean Overall	N	F	SIG
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD				
Music listening in free time	1.98	.93	*1.90*	.88	**2.33**	.99	1.93	.82	2.04	600	7.474	.0001
Listening to music as a child	*2.24*	1.06	*2.24*	.99	**2.69**	1.00	2.36	.90	2.38	593	7.509	.0001
Listening to music when I wake up	2.83	1.44	3.03	1.56	**3.73**	1.42	*2.51*	1.50	3.02	590	1.662	.0001
Listening to music when I go to sleep	2.80	1.35	2.80	1.37	**3.09**	1.32	*2.77*	1.44	2.87	597	.890	.123
Listen to music at home in the morning	2.66	1.34	2.55	1.28	**3.53**	1.41	*2.45*	1.23	2.80	592	13.939	.0001
Listen to music at home in the evening	*2.24*	1.08	2.52	1.27	**2.61**	1.21	2.36	1.15	2.43	599	1.404	.031
Listen to music while I am eating	3.34	1.25	*3.16*	1.41	**4.32**	.99	3.41	1.18	3.56	595	15.285	.0001
Listen to music when I am taking a bath	3.61	1.45	*2.97*	1.59	**4.67**	.70	3.23	1.53	3.62	594	28.896	.0001
Listen to music when I am travelling	2.25	1.16	2.05	1.15	**3.03**	1.38	*1.61*	.93	2.23	600	28.905	.0001

TABLE 3: **Summary of results for listening to music in everyday life**
The highest responses are in **BOLD**, and the lowest are in *ITALICS*
The highest responses mean the least listening

Figure 11



Overall the students reported listening most when they were travelling and least when they were taking a bath (see Figure11). Repeated measures analysis of variance showed that these differences were significant ($F=127.15$, $df=6$, $p=.000$) and that there were significant interactions between these differences and nationality ($F = 9.12$, $df = 21$, $p = .0001$).

The Japanese students listened to less music in their everyday life activities compared to the UK, Greek and American students. These differences were significant in every case except for listening to music when going to sleep. In every case the Japanese reported listening the least. The responses from the other nationalities were sometimes very similar while at other times one nationality was more extreme. Overall, the Americans and the UK students tended to make similar responses while the Greek students tended to differ.

4.2 Music and studying

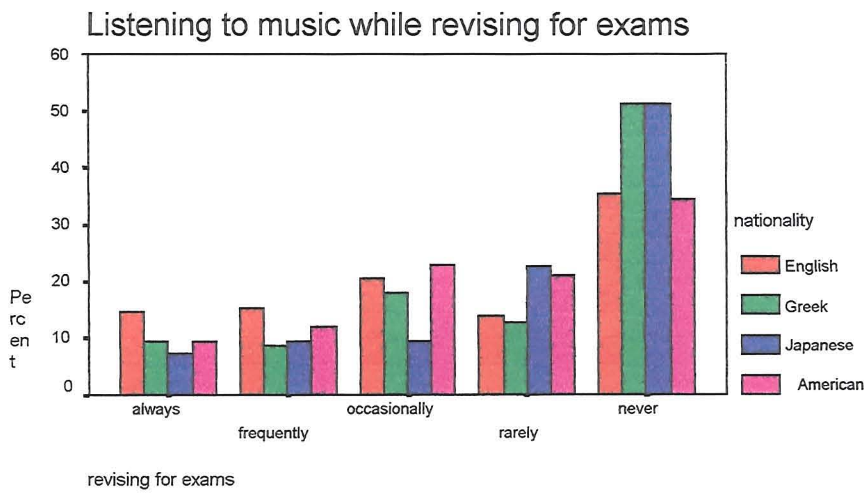
Seventy seven percent (77%) of the whole sample said that they listened to music while they were studying. This included 16% reporting always, 22% frequently, 23% occasionally and 16% rarely listening to music while studying. When a comparison was made between nationalities, overall the UK students listened the most (mean = 2.89, SD = 1.45). There was little difference between the Greek (mean = 3.17, SD = 1.4), Japanese (mean = 3.19, SD = 1.32) and US students (mean = 3.1, SD = 1.38). These differences were not statistically significant.

The next sections examine when students listen to music while studying and whether there are differences between the different nationalities.

4.2.1 Listening to music while revising for exams

The UK students reported listening to music the most while revising for exams (mean = 3.4, SD = 1.47), the Japanese the least (mean = 4.01, SD = 1.28) with the Greeks (mean = 3.88, SD = 11.37) and US students (mean 3.59, SD = 1.32) falling between these two extremes. These differences were statistically significant (F = 6.2, df = 3,594, p = .0001). Half of the Japanese and Greek students reported never listening to music while revising (see figure 12). The post hoc Bonferroni test showed that the difference was between the English and the Greeks and the American students.

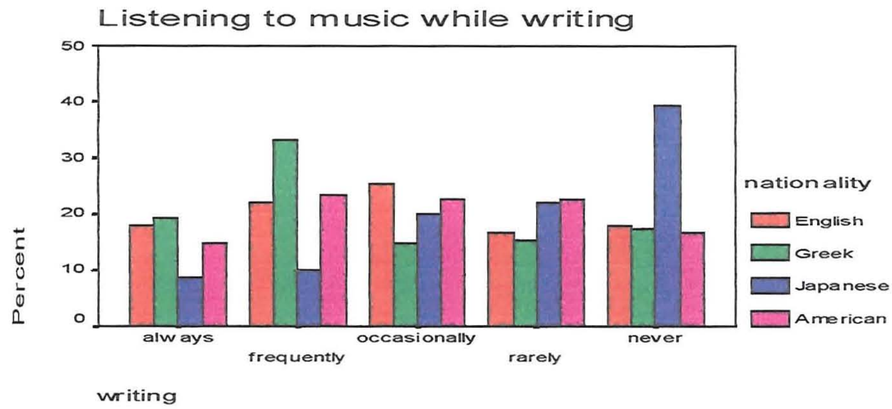
Figure 12



4.2.2 Listening to music while writing

Many of the students reported listening to music while they were writing. The majority of the Greek and American students reported that they frequently listened to music while studying. Comparison of the means showed that the Greek (mean = 2.78, SD = 1.38) and UK students (mean = 2.95, SD = 1.36) were the most frequent listeners while writing followed by the Americans (mean = 3.03, SD = 1.31). The Japanese listened least frequently (mean = 3.73, SD = 1.31). These differences were significantly different (F = 8.7, df = 3,596, p = .00001). A post hoc Bonferroni test showed that the significant difference was between the means of the Japanese students and the other nationalities. Figure 13 gives the frequencies of response in each category.

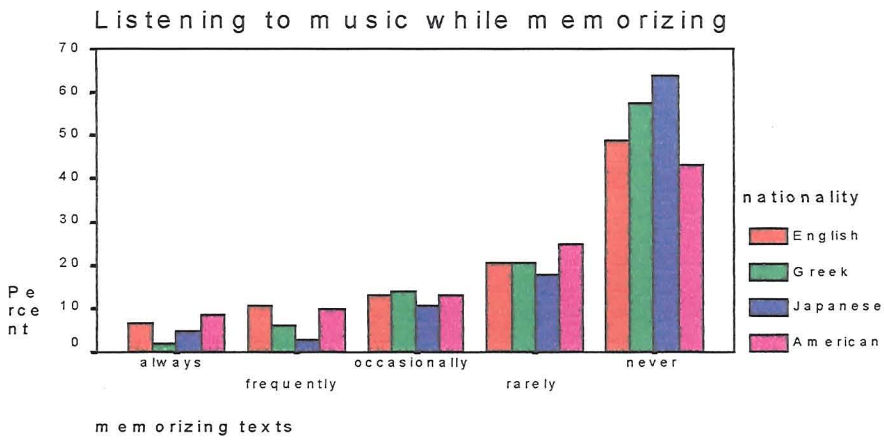
Figure 13



4.2.3 Listening to music while memorising texts

The data revealed that students reported rarely listening to music when they were memorizing text. The majority of students regardless of nationality said never. Despite this there were significant differences between the nationalities. The Japanese reported listening the least (mean = 4.35, SD = 1.09) followed by the Greek students (mean = 4.25, SD = 1.04). The US students listened the most (mean = 3.84, SD = 1.32) with the UK students (mean 3.94, SD = 1.29) in between. The differences between the Greek and Japanese students and the English and American students were significantly different (F = 3.3, df = 3,596, p = .020).

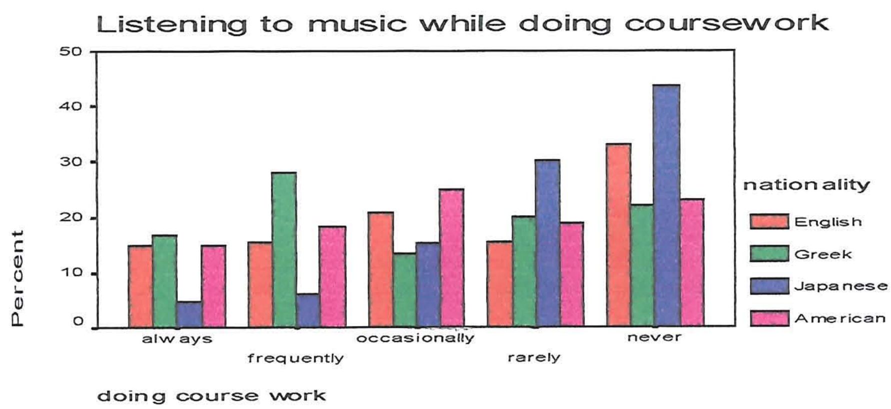
Figure 14



4.2.4 Listening to music while doing course work

The majority of the Japanese students (44%) and a high proportion of the UK students (33%) reported that they never listened to music while they were doing coursework (see figure 15). The means for the different groups were: Japanese 4.02 (SD = 1.12), UK 3.36 (SD = 1.45), Greek 3.36 (SD = 1.45), US 3.17 (SD = 1.37). These differences were highly significant (F = 8.4, df = 3,591, p = .0001), again between the Japanese and all other nationalities. There may be differences in the nature of course work in the education institutions in each of the participating nationalities, which may have impacted on these differences.

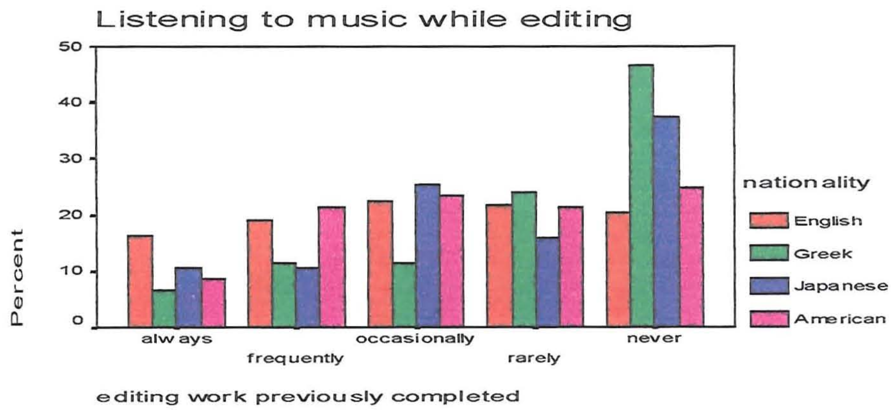
Figure 15



4.2.5 Listening to music while editing work previously completed

In response to a question about their listening habits while editing previously completed work, the Greeks gave the greatest number of negative responses (mean = 3.93, SD = 1.28) followed by the Japanese (mean = 3.59, SD = 1.36) (see figure 16). Overall, those who were most likely to listen to music while editing previously written work were the UK students (mean = 3.1, SD = 11.37). The responses of the US students fell in between (mean = 3.32, SD =1.3). The differences between the English and the Americans and the Greeks, but also between the Japanese and the UK students were statistically significant (F = 8.1, df = 3,592, p = .0001).

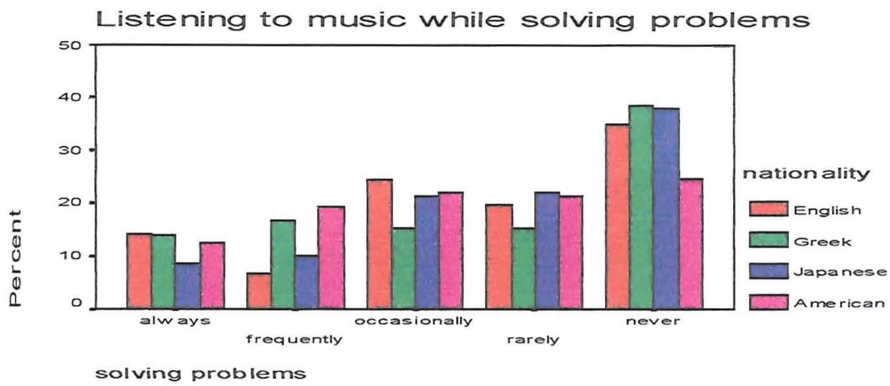
Figure 16



4.2.6 Listening to music while solving problems

Most students regardless of nationality reported listening to music while solving problems. The highest scores came from the US students (mean = 3.26, SD = 1.36), followed by the Greeks (mean = 3.48, SD = 1.49) and the UK students (mean = 3.55, SD = 1.4). Those reporting listening least while solving problems were the Japanese (mean = 3.71, SD = 1.3). A post hoc Bonferroni test revealed that the differences between the groups were not statistically significant (F = 1.1, df = 3,594, p = .360). The Greek students gave the most frequent response of never (see Figure 17).

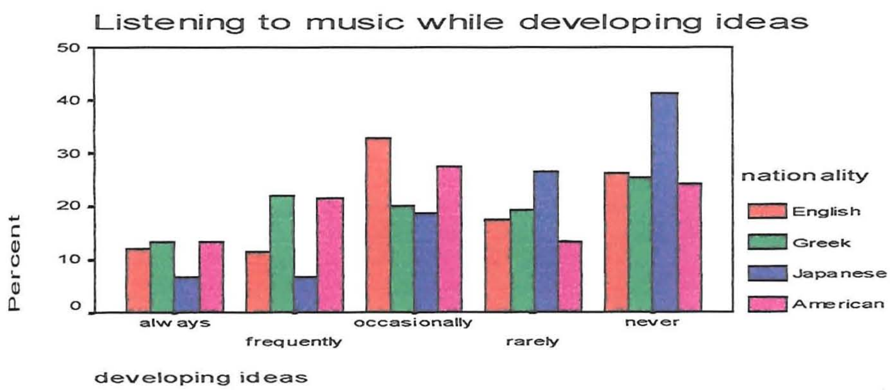
Figure 17



4.2.7 Listening to music while developing ideas

The Japanese students reported listening to music the least when they were developing ideas (mean = 3.89, SD = 1.21). Their scores were significantly different (F = 6.9, df = 3,594, p = .0001) to those of all the other nationalities (UK: mean = 3.34, SD = 1.3; Greek: mean = 3.21, SD = 1.39; US: mean = 3.13, SD = 1.36). Figure 18 gives details of the frequencies of response. The difference was between the Japanese and all other nationalities.

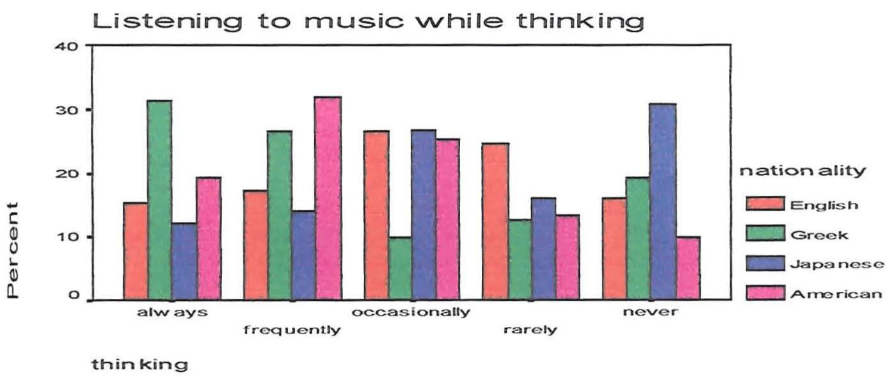
Figure 18



4.2.8 Listening to music while thinking

Related to developing new ideas was a question concerning the extent to which the students listened to music while thinking. The majority of the Greeks responded 'always' to this question (mean = 2.62, SD = 1.51), the majority of the US and UK students 'frequently' (US: mean = 2.63, SD = 1.2; UK: mean = 3.09, SD = 1.29), and the majority of the Japanese 'never' (mean = 3.4, SD= 1.37). A post hoc Bonferroni test revealed significant differences between the Greek and US students as distinct from the Japanese, but also between the English and the Greek (F =6.3, df = 3,595, p =.0001). Figure 19 gives details of the frequencies.

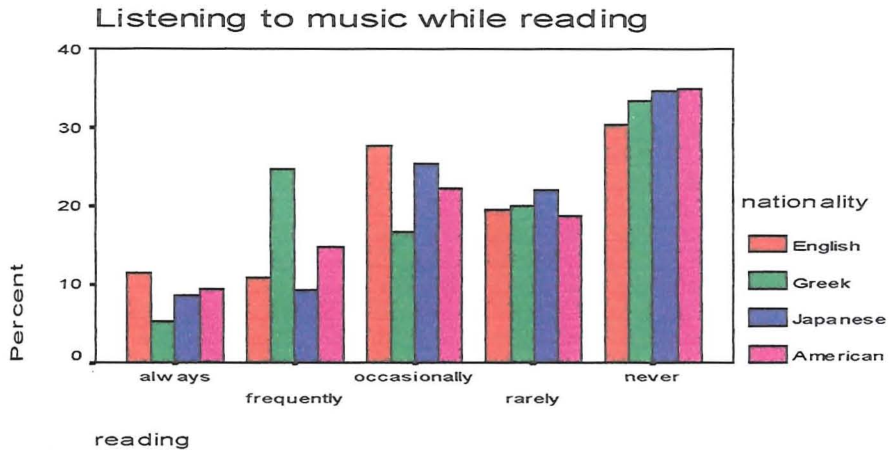
Figure 19



4.2.9 Listening to music while reading

The only area of studying where there was no statistically significant difference between the nationalities was in relation to reading. The means were UK: mean = 3.47, SD = 1.33; Greek: mean = 3.51, SD = 1.31; Japanese: mean = 3.65, SD = 1.28; US: mean = 3.55, SD = 1.35. The frequency of responses are given in Figure 20.

Figure 20



4.2.10 Listening to music with my favourite and my least favourite subject

A series of questions explored whether the extent to which the student liked or disliked the subject matter being studied influenced their listening to background music. There were no significant differences between the nationalities in response to both questions concerning favourite subject (UK: mean 3.15, SD = 1.4; Greek: mean 3.48, SD = 1.5; Japanese: mean = 3.45, SD = 1.32; US: mean = 3.33, SD =1.41) and the least favourite subject. Here the UK students reported listening the most when they were studying their least favourite subject (mean = 3.10, SD = 1.41) with the Japanese the least (mean = 3.54, SD = 1.37) and the US (mean = 3.19, SD = 1.48) and Greeks (mean =3.43, SD = 1.56) in between. Figures 21 and 22 illustrate the frequencies of responses.

Figure 21

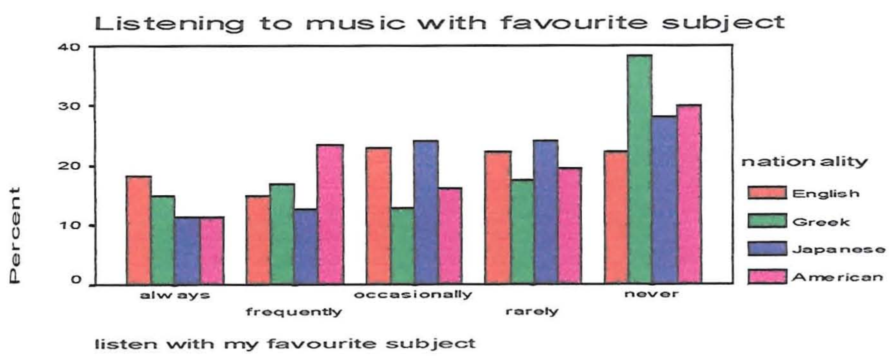
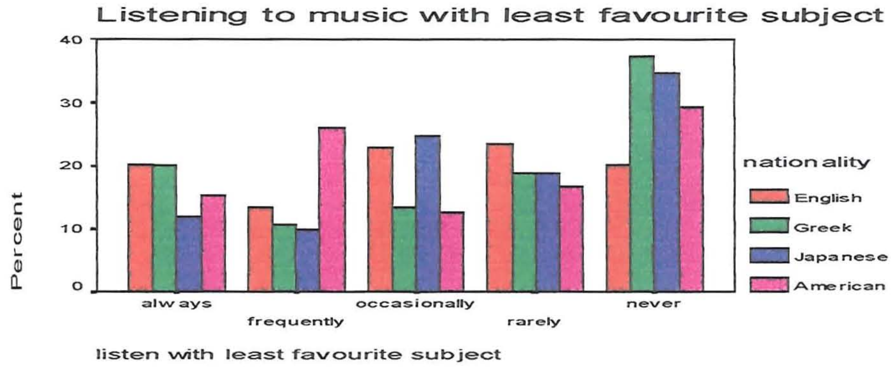


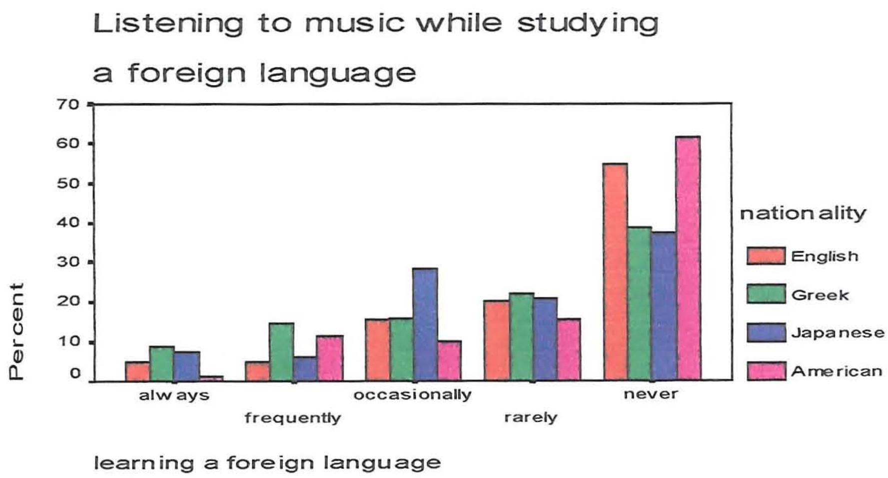
Figure 22



4.2.11 Listening to music while learning a foreign language

The Greek and Japanese students reported listening to music the most when studying foreign languages (Greek: 3.56, SD = 1.35; Japanese: mean 3.75, SD= 1.23). The students least frequently reporting listening when learning a foreign language were the Americans (mean = 4.24, SD = 1.12) followed by the UK students (mean = 4.16, SD =1.14). These differences are statistically significant (F = 6.3, df = 3,591, p = .0001). Figure 23 sets out the frequencies of each response.

Figure 23



4.2.12 Summary of results for listening to music while studying

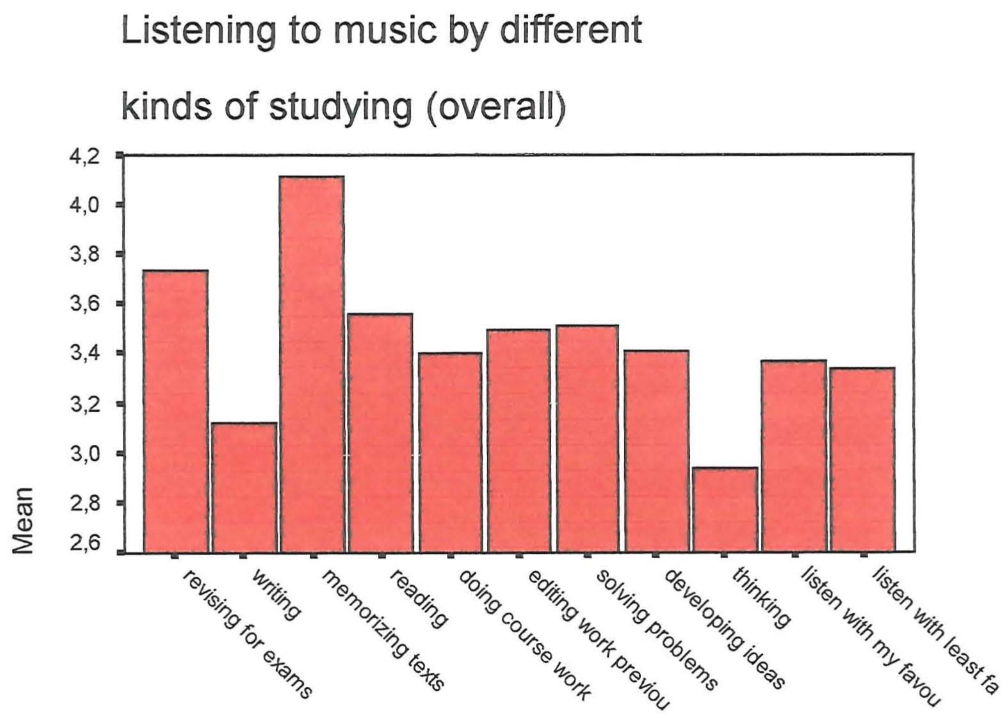
Table 4 gives a summary of the means and standards deviations for all the questions posed with regard to listening to music in relation to particular types of studying and the details of the multivariate analysis of variance. In almost every category the Japanese listened to music the least. This reflects the findings in the previous section in relation to students listening to music in their everyday lives. The US students reported listening less than the other nationalities when they were studying a foreign language. This may reflect curriculum differences in that there may be less emphasis on learning a foreign language in the US.

A repeated measures analysis of variance found significant differences between the means across questions demonstrating that the students listen to music differentially depending on the type of studying they are undertaking ($F = 13.01$, $df = 11$, $p = .0001$).

Question	**UK**		**GREECE**		**JAPAN**		**USA**		**MEAN Overall**	**N**	**F**	**SIG**
Listening to music while:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
Studying	*2.89*	1.45	3.17	1.40	**3.19**	1.32	3.10	1.38	3.09	598	1.355	.256
revising for exams	*3.40*	1.47	3.88	1.37	**4.01**	1.28	3.59	1.32	3.72	598	6.224	.0001
writing	2.95	1.36	*2.78*	1.38	**3.73**	1.31	3.03	1.31	3.12	600	8.746	.0001
memorizing texts	3.94	1.29	4.25	1.04	**4.35**	1.09	*3.84*	1.32	4.10	600	3.305	.020
reading	*3.47*	1.33	3.51	1.32	**3.65**	1.28	3.55	1.35	3.54	597	.144	.934
Doing course work	3.36	1.45	*3.03*	1.43	**4.02**	1.12	3.17	1.37	3.39	595	8.442	.0001
Editing work previously completed	*3.11*	1.37	**3.93**	1.28	3.59	1.36	3.32	1.30	3.49	596	8.141	.0001
solving problems	3.55	1.40	3.48	1.49	**3.71**	1.30	*3.26*	1.36	3.50	598	1.074	.360
developing ideas	3.34	1.31	3.21	1.39	**3.89**	1.21	*3.13*	1.36	3.40	598	6.993	.0001
thinking	3.09	1.29	*2.62*	1.51	**3.40**	1.37	2.63	1.22	2.93	599	6.347	.0001
listen with favourite subject	*3.15*	1.40	**3.48**	1.50	3.45	1.32	3.33	1.41	3.35	598	1.278	.282
listen with least favourite subject	*3.10*	1.41	3.43	1.56	**3.54**	1.37	3.19	1.48	3.31	599	2.360	.071
Learning a foreign language	4.16	1.14	*3.67*	1.35	3.75	1.23	**4.24**	1.12	3.95	595	6.283	.0001

TABLE 4 : Nationality by music listening while studying The highest responses in with **BOLD**, and the lowest in with *ITALICS* The highest responses mean the least listening

Figure 24



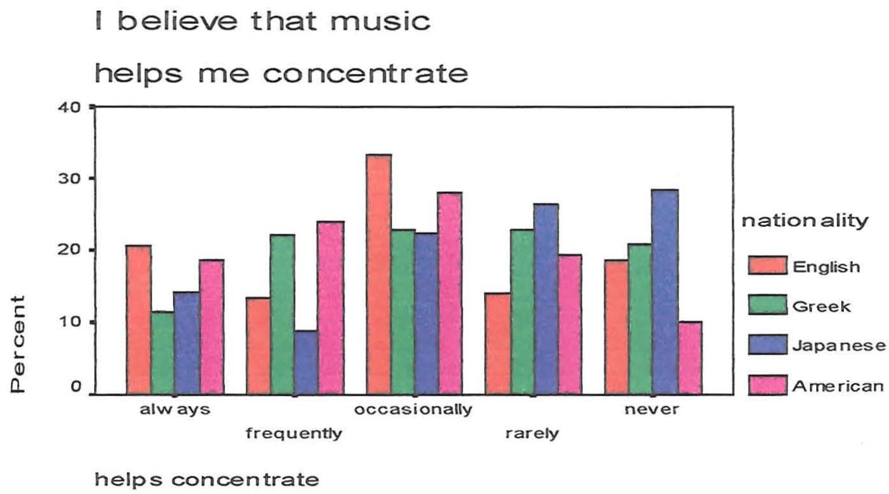
4.3 Perceived effects of listening to background music

The third set of questions referred to the perceived effects of listening to background music while studying. Students responded to a series of statements indicating whether they believed that music had a particular affect on them always, frequently, occasionally, rarely, or never.

4.3.1 I believe that music helps me concentrate

The majority of the American students believed that music helped them concentrate (mean = 2.78, SD = 1.24), followed by the UK students (mean = 2.97, SD = 1.36) and the Greeks (mean = 3.19, SD = 1.31). The Japanese held this belief the least (mean 3.46, SD = 1.36). The post hoc Bonferroni test showed that the difference between the extremes, i.e. the Americans and the Japanese, but also between the Japanese and the English was statistically significant (F = 4.4, df = 3,593, p = .004). Figure 25 illustrates the frequencies and the varied distribution of beliefs.

Figure 25

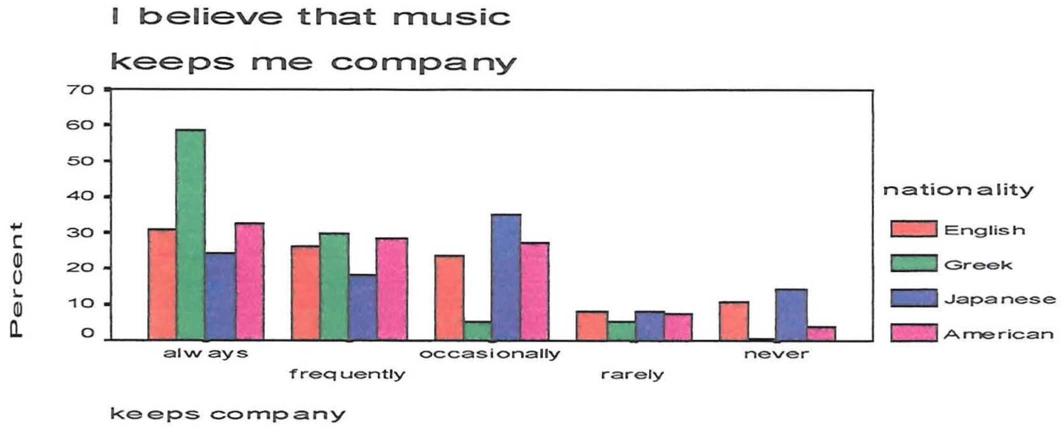


4.3.2 I believe that music keeps me company

Figure 26 shows the distribution of scores for students' beliefs about the extent to which music 'keeps them company'. The distribution is markedly different from figure 25. Almost 60% of the Greek students believe that music kept them company when they were studying. Only one expressed a strong negative response (mean = 1.59, SD = .87). The Japanese indicated that music occasionally, or never kept them company (mean = 2.7, SD = 1.31). The UK (mean = 2.41, SD = 1.3) and US students (mean 2.21, SD = 1.1) gave similar responses, which were in between the two extremes. The post hoc

Bonferroni test indicates that there are significant differences between the extreme groups, the Greek and all other nationalities (F = 19.7, df=3,596 p = .0001).

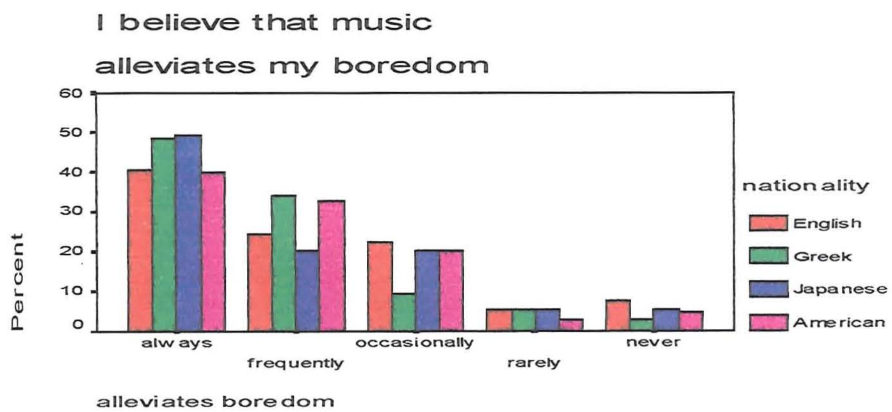
Figure 26



4.3.3 I believe that music alleviates my boredom

A similar distribution to that for music 'keeping students' company' was found for music alleviating boredom. Most students believed that music had this positive effect. The nationality most strongly supporting this assertion were the Greeks (mean = 1.79, SD = 1), followed by the Japanese (mean = 1.97, SD =1.18) and the US students (mean = 1.99, SD = 1.06). The students least likely to believe that music alleviated their boredom were the UK students (mean = 2.15, SD = 1.23). None of these differences were statistically significant.

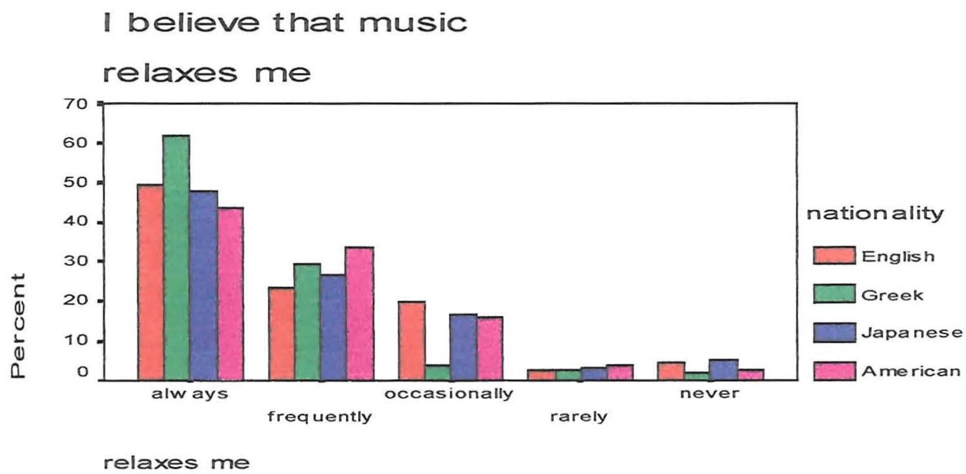
Figure 27



4.3.4 I believe that music relaxes me

There appeared to be an even greater belief among the students that music acted to help them relax (see figure 28). This belief was held most strongly by the Greek students (mean = 1.53, SD = .86). There was little difference between the other groups of students (UK: mean = 1.9, SD = 1.1; Japanese: mean = 1.91, SD = 1.12, US: mean = 1.89, SD = 1). These differences were not statistically significant.

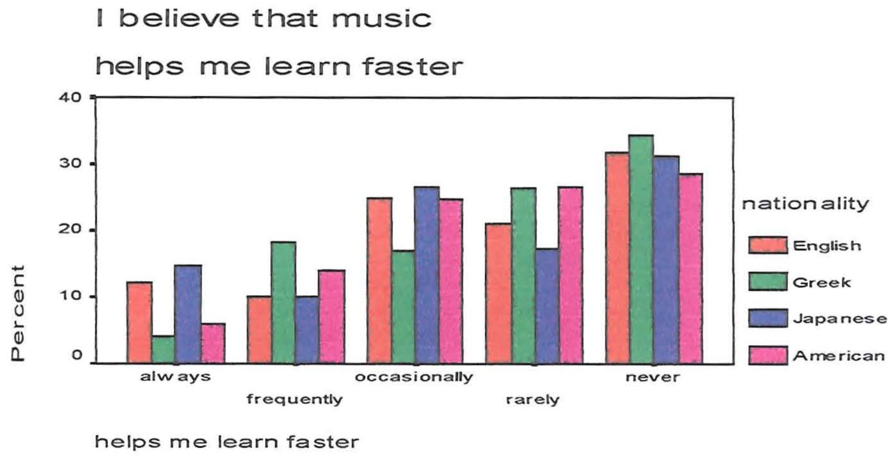
Figure 28



4.3.5 I believe that music helps me learn faster

Most students did not believe that listening to music helped them to learn faster (see figure 29). There were no significant differences between the nationalities in response to this question. The overall mean was 3.54.

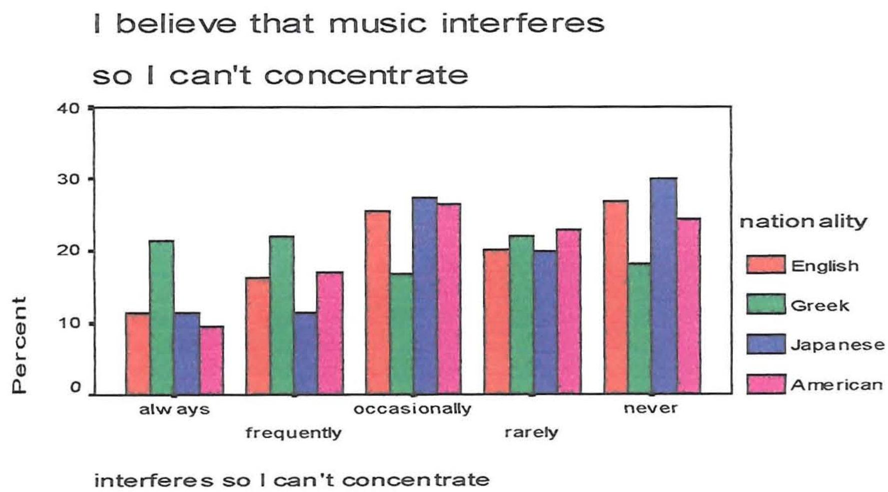
Figure 29



4.3.6 I believe that music interferes so I can't concentrate

In relation to concentration, the responses were more evenly distributed, although there was a tendency overall for students to believe that music does help them to concentrate. The Japanese hold the strongest belief that the music interfered with their concentration (mean = 3.46, SD = 1.33). The responses from the US (mean = 3.36, SD = 1.28) and UK students (mean 3.35, SD = 1.34) were very similar, while the Greeks tended to believe that music did not interfere with their concentration (mean = 3.35, SD = 1.34). The differences between the Greeks and the Japanese were significantly different (F = 4.4, df = 3,593, p = .005).

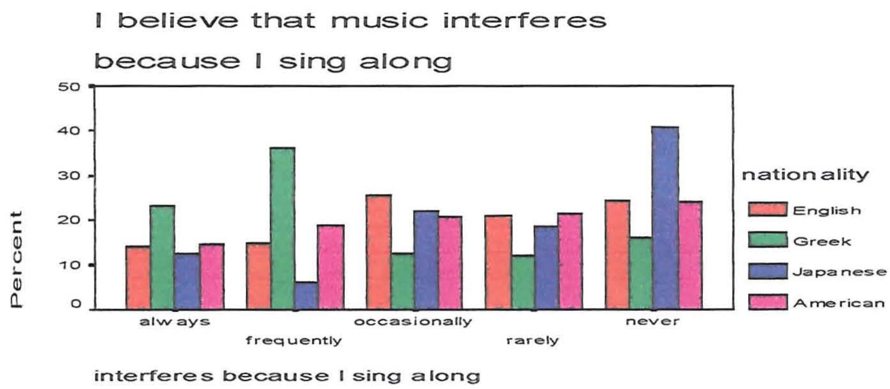
Figure 30



4.3.7 I believe that music interferes because I sing along

The Greeks, significantly more than the other students appeared to 'sing along' with the music to which they were listening which in turn appeared to distract them (mean = 2.62, SD = 1.38). This appeared to be less of a problem for the UK (mean = 3.26, SD = 1.36), US (mean = 3.21, SD = 1.39) and Japanese students (mean = 3.69, SD = 1.39). The difference in responses between the Greeks and the other students was statistically significant (F = 9.7, df = 3,593, p = .00001).

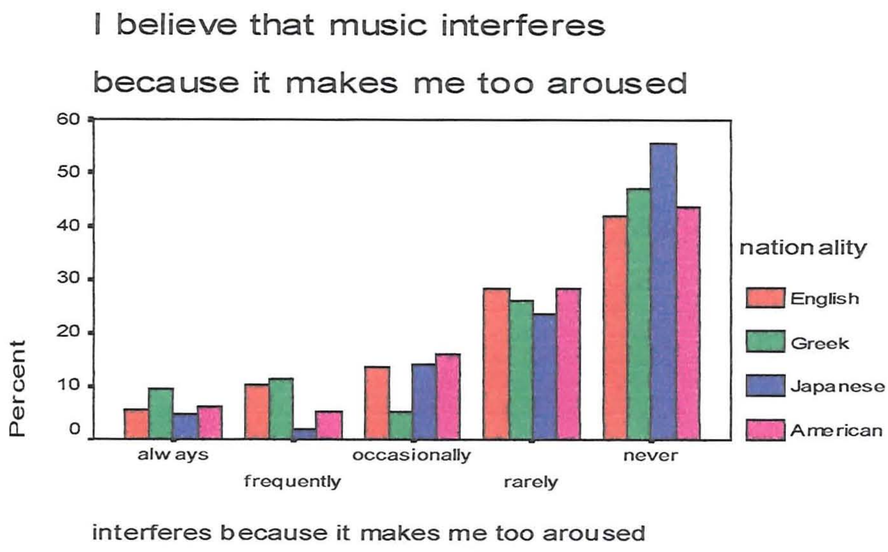
Figure 31



4.3.8 I believe that music interferes because it makes me too aroused

The majority of students believed that music did not interfere with their studying when it raised their arousal level. There was no statistically significant difference between the nationalities in response to this question. The overall mean was 4.01. Figure 32 gives details of the distribution.

Figure 32



4.3.9 Summary of results of the perceived effects of listening to background music while studying

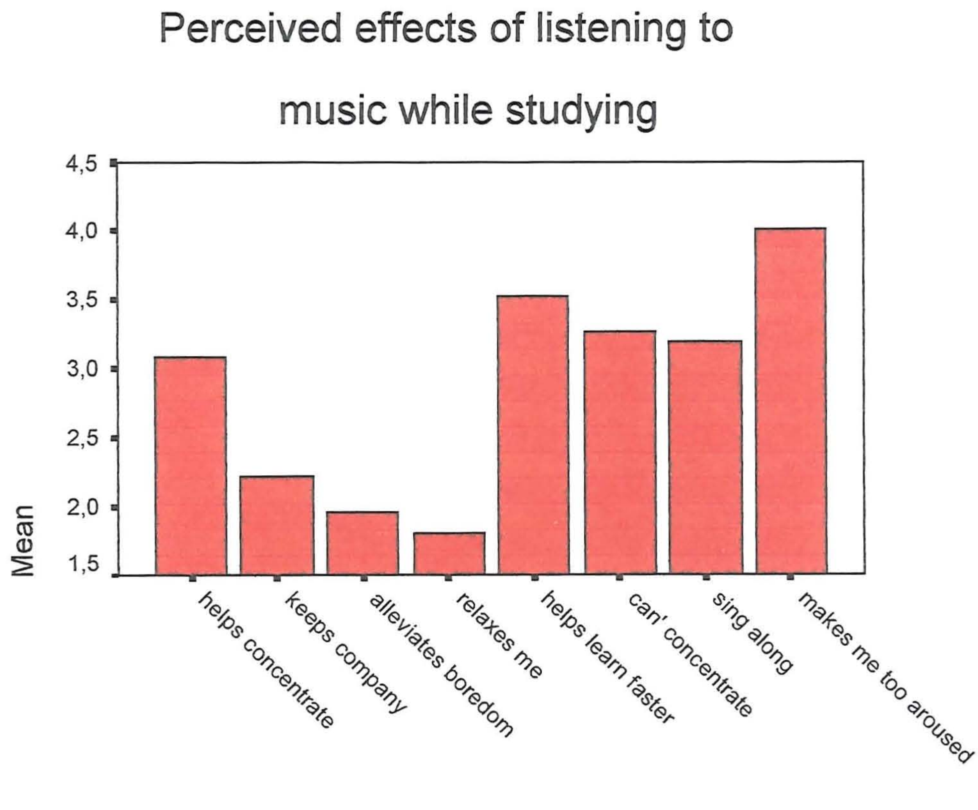
Table 5 gives the means and standard deviations for all the questions in this section and the details of the multivariate analysis of variance. Overall, there was consensus that music helped the students relax, alleviated boredom but could interfere with concentration. Within this overall consensus there were some national trends. Responses to the other questions were more varied, although some national trends emerged. Individual variation, perhaps related to personality characteristics, may be responsible for some of this variation.

Figure 33 outlines the overall differences in means for each question. A repeated measures analysis of variance indicated that these differences were statistically significant ($F = 1.057$, $df = 6$, $p = .05$).

Question I believe that music:	UK MEAN	UK SD	GREECE MEAN	GREECE SD	JAPAN MEAN	JAPAN SD	USA MEAN	USA SD	MEAN overall	N	F	SIG
Helps concentrate	2.97	1.36	3.19	1.31	**3.46**	1.36	*2.78*	1.24	3.10	597	4.440	.004
Keeps company	2.41	1.30	*1.59*	.87	**2.70**	1.31	2.21	1.10	2.23	596	19.752	.0001
alleviates my boredom	**2.15**	1.23	*1.79*	1.00	1.97	1.18	1.99	1.06	1.98	598	1.618	.184
Relaxes me	1.90	1.10	*1.53*	.86	**1.91**	1.12	1.89	1.00	1.81	599	2.437	.064
Helps me learn faster	3.50	1.35	**3.69**	1.23	*3.41*	1.40	3.58	1.21	3.54	596	1.944	.122
Interferes so I can't concentrate	3.35	1.34	*2.93*	1.42	**3.46**	1.33	3.36	1.28	3.27	597	4.363	.005
Interferes because I sing along	3.26	1.36	*2.61*	1.38	**3.69**	1.39	3.21	1.39	3.19	597	9.756	.0001
Interferes because it makes me too aroused	3.92	1.21	*3.91*	1.36	**4.23**	1.08	3.99	1.17	4.01	591	2.209	.086

TABLE 5 : Nationality by perceived effects of listening to background music
The highest responses are in **BOLD**, and the lowest are in *ITALICS*
The highest responses mean the least agreement

Figure 33



4.4 What kind of music do students listen to while studying?

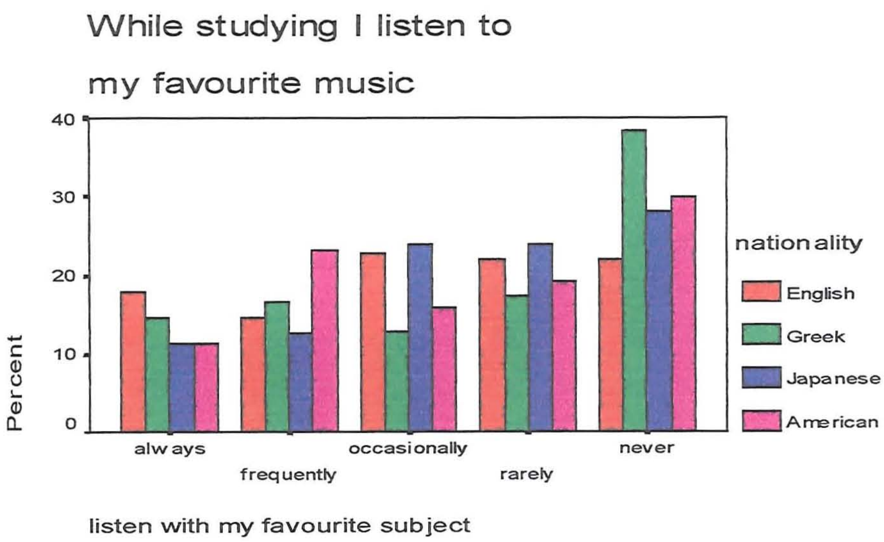
This section examines the different kinds of music that students reported listening to while they were studying. It contains two sub-sections: the first relating to general characteristics of the music, e.g. slow, fast, calming, arousing and the second relating to different genres of music, e.g. jazz, classical, pop, rock, etc. In the second section, the categories differed between countries although some were the same.

Characteristics of music listened to while studying

4.4.1 Listen to my favourite music while studying

There was a mixed response to this question. Overall, there was a tendency for the students not to listen to their 'favourite' music while studying. This particularly applied to the Greek students (mean = 2.89, SD= 1.51), although the responses from all the nationalities were similar (overall mean = 2.68) and there were no significant differences between them.

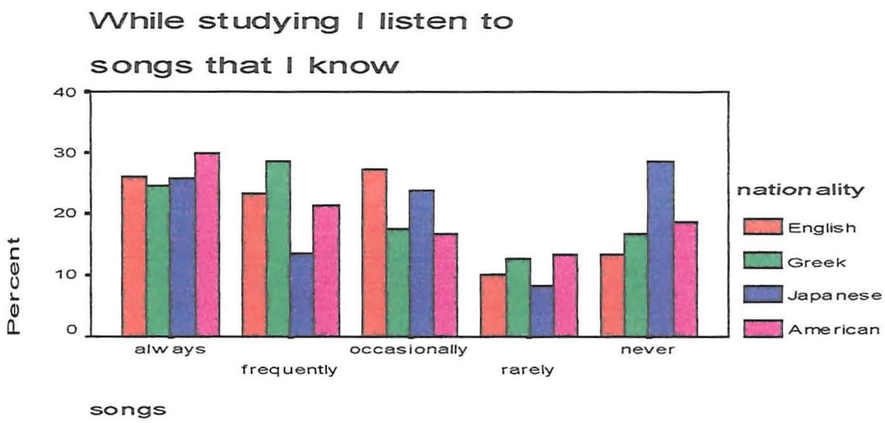
Figure 34



4.4.2 While studying I listen to songs that I know

While the students did not tend to listen to their favourite songs while studying they did tend to listen to songs that they knew (see figure 35). There were no significant differences between the different nationalities in response to this question. The overall mean was 2.59.

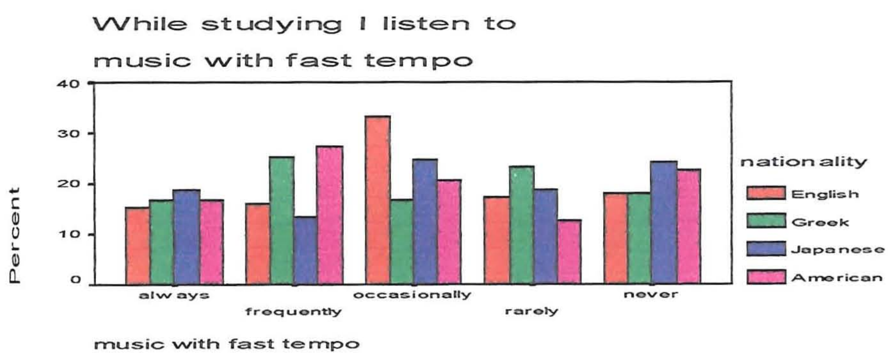
Figure 35



4.4.3 While studying I listen to 'fast' music

The responses to listening to fast music were equally variable to those for music that was known. There were no statistically significant differences between the responses of the different nationalities. The overall mean was 3.05.

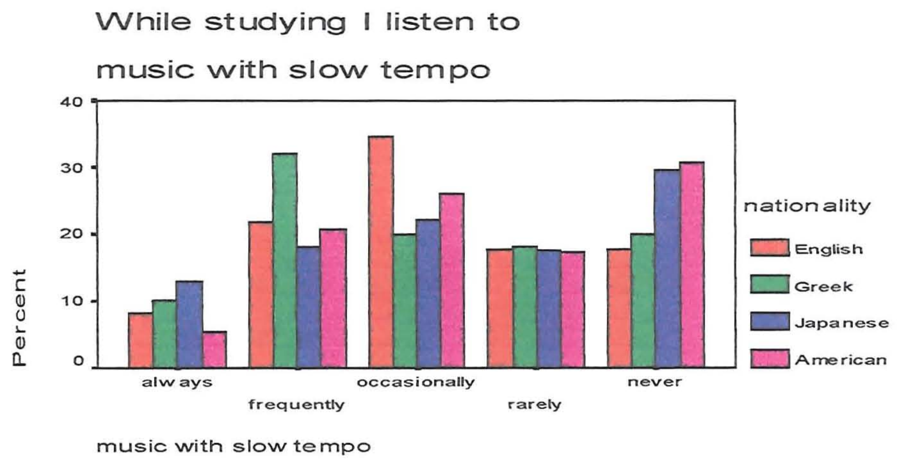
Figure 36



4.4.4 While studying I listen to music with slow tempo

Listening to slow music while studying revealed national differences. The US students were least likely to report doing this (mean = 3.47, SD = 1.27) followed by the Japanese (mean = 3.33, SD = 1.4). The Greeks reported listening to slow music while studying the most (mean = 3.06, SD = 1.31) with the UK students in between (mean = 3.15, SD = 1.19). The differences between them were not statistically significant.

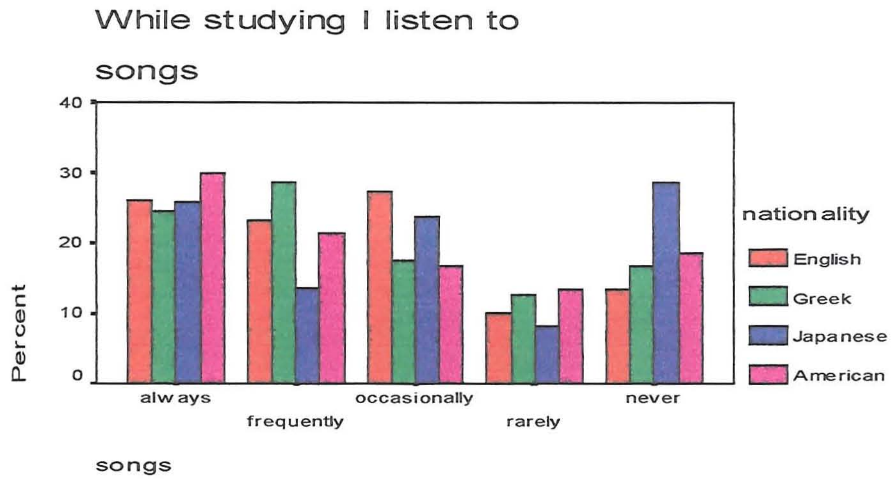
Figure 37



4.4.5 While studying I listen to songs

The category of listening to songs was included as it was thought that the students might perceive that the words of songs would interfere with studying. There was great variability in the responses which followed no national pattern. The overall mean was 2.75 and there were no statistically significant differences between the 4 nationalities.

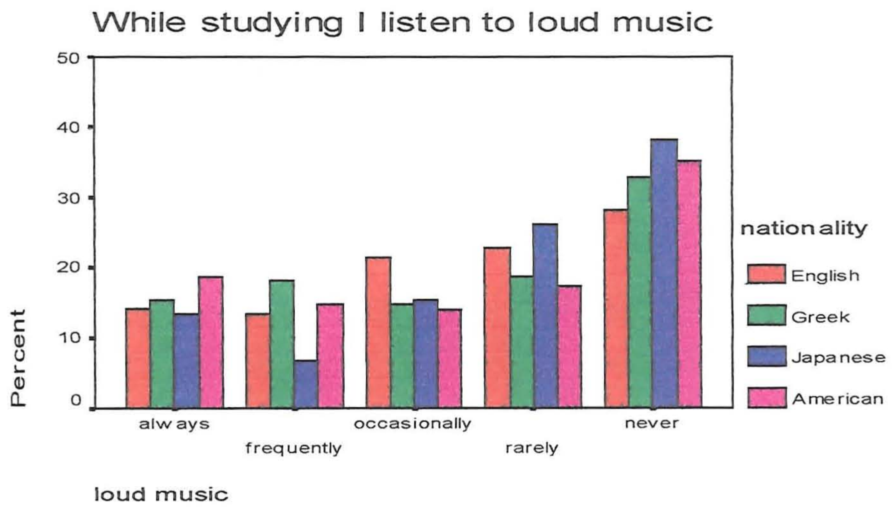
Figure 38



4.4.6 While studying I listen to loud music

There was a clearer trend here, with students indicating that they avoided listening to loud music while studying. There were no significant differences between nationalities. The overall mean was 3.45.

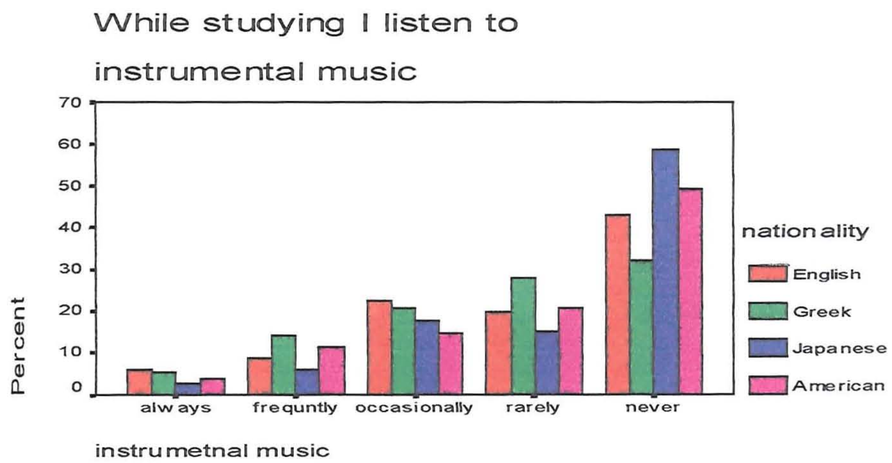
Figure 39



4.4.7 While studying I listen to instrumental music

The important characteristic of instrumental music in relation to listening to it while studying is that it has no verbal component, which might act as a distracter. This does not appear to be reflected in the responses of the students. There is a clear trend that the students tend not to listen to instrumental music while studying. The overall mean was 3.93. The least likely nationality to listen to instrumental music were the Japanese (mean = 4.2 , SD = 1.1), the most likely to listen were the Greeks (mean = 3.67, SD = 1.21). The difference, between these two nationalities (Japanese and Greeks), but also between the Japanese and the English was statistically significant (F=3.2, df=3,594, p=.024). The means of the other nationalities fell in between (US: mean = 4, SD = 1.21; UK: mean = 3.84, SD = 1.24).

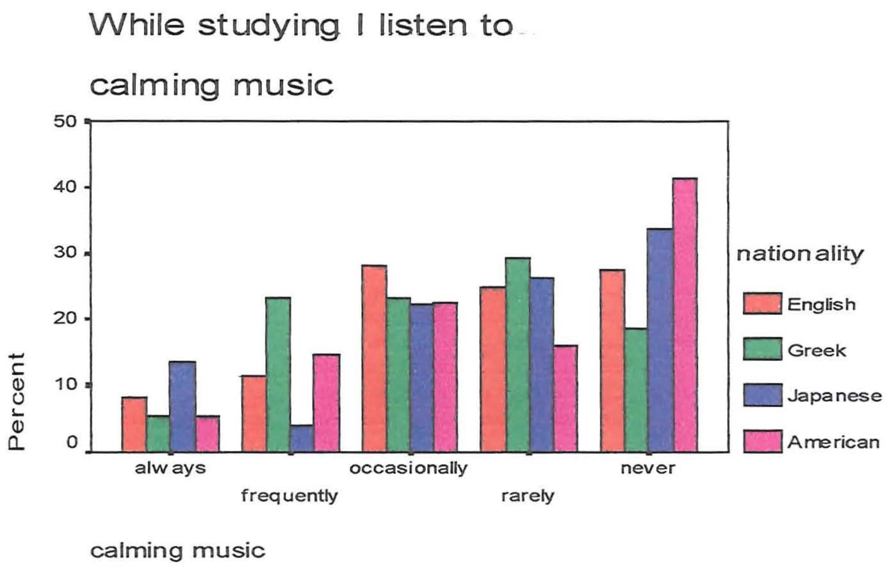
Figure 40



4.4.8 While studying I listen to calming or arousing music

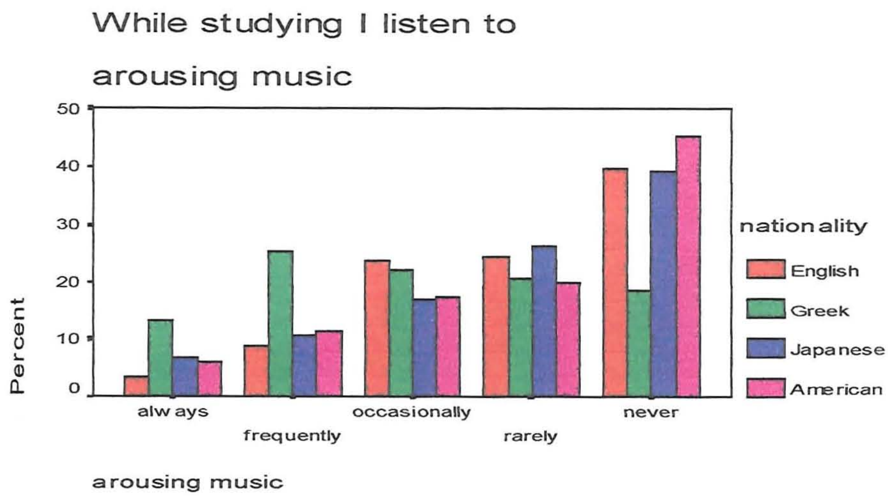
The evidence from empirical studies on the effects of music on studying suggests that calming music tends to improve studying, arousing music tends to disrupt it. It was expected that students would report listening to calming music while studying more frequently than arousing music. The overall trend from the responses to the question about calming music was that the students tended not to listen to it while studying. The overall mean was 3.55. There were nationality differences, which were statistically different. Those least likely to listen to calming music were the US students (mean = 3.73, SD = 1.28). Those most likely to listen to calming music were the Greeks (mean = 3.3, SD = 1.18). The UK students (mean = 3.52, SD = 1.23) and the Japanese (mean = 3.63, SD = 1.35) fell between the extremes. These differences were not statistically significant. Figure 41 illustrates the distribution of responses.

Figure 41



In relation to arousing music the trend was very similar overall. There was a tendency for students not to listen specifically to arousing music. This trend was overlaid by national differences. The UK students reported listening to arousing music the least (mean = 3.89, SD = 1.13) while the Greeks reported listening to it most (mean = 3.06, SD = 1.32). The US students (mean = 3.87, SD = 1.27) and the Japanese students (mean = 3.8, SD = 1.25) fell in between. These differences were statistically significant (F =6.8, df = 3,592, p = .00001) between the Greeks and all other nationalities.

Figure 42



Despite the contrasting characteristics of the music, calming and arousing, the trend of responses were very similar. In both cases the Greeks reported listening to both kinds of music while studying more than the other nationalities.

4.4.9 Summary

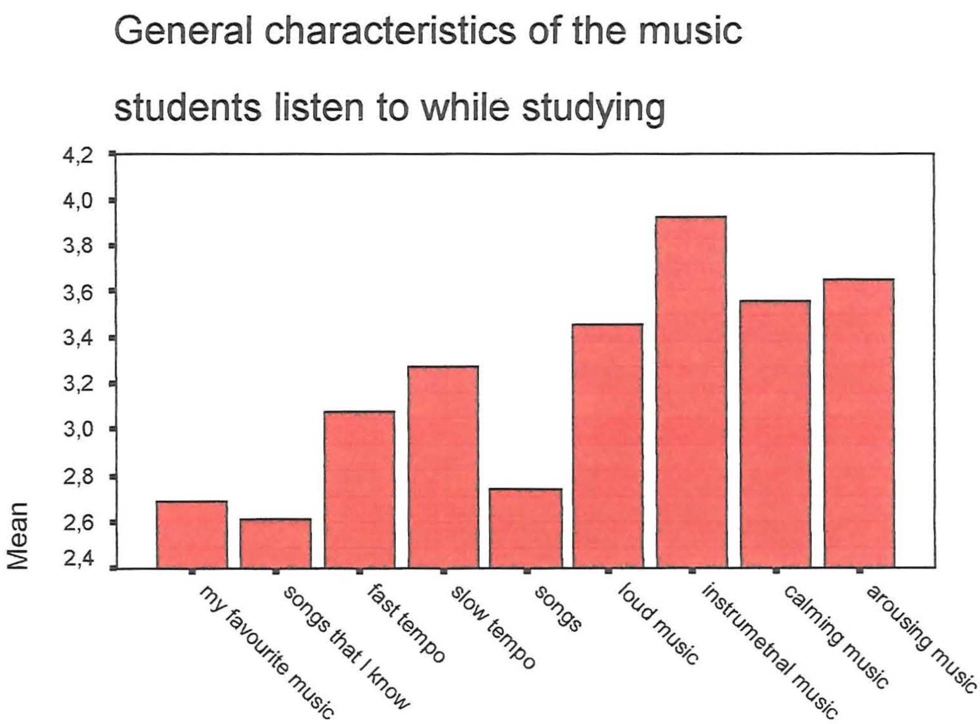
Table 6 provides an overview of the means and Standard Deviations of all the findings in this section and the details of the multivariate analysis of variance. Figure 43 provides a graphical representation of the overall means. A repeated measures analysis of variance showed no difference in the overall means between the various categories which tends to suggest that no particular musical characteristics determine the music which students play in the background.

Question	**UK**		**GREECE**		**JAPAN**		**USA**		**MEAN overall**	**N**	**F**	**SIG**
While studying I listen to	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
my favourite music	2.57	1.43	**2.89**	1.51	*2.56*	1.54	2.70	1.50	2.68	587	2.149	.093
songs that I know	*2.47*	1.29	**2.68**	1.43	2.64	1.56	2.58	1.45	2.59	595	.297	.828
music with fast tempo	3.07	1.29	3.01	1.37	**3.16**	1.42	*2.97*	1.41	3.05	599	.305	.822

music with slow tempo	3.15	1.19	*3.06*	1.31	3.33	1.40	**3.47**	1.27	3.25	596	2.549	.055
Songs	*2.61*	1.33	2.69	1.41	**3.00**	1.55	2.69	1.49	2.75	590	.973	.406
loud music	3.38	1.39	*3.36*	1.48	**3.69**	1.39	*3.36*	1.54	3.45	597	.300	.825
instrumental music	3.84	1.24	*3.67*	1.21	**4.20**	1.10	4.00	1.21	3.93	594	3.164	.024
calming music	3.52	1.23	*3.33*	1.18	3.63	1.35	**3.73**	1.28	3.55	597	2.259	.081
arousing music	**3.89**	1.13	*3.06*	1.32	3.80	1.25	3.87	1.27	3.65	596	6.829	.0001

TABLE 6 : Nationality by the general kinds of music that students listen to while studying
The highest responses are in **BOLD.** and the lowest are in *ITALICS*
A high score indicated low agreement with the statement

Figure 43



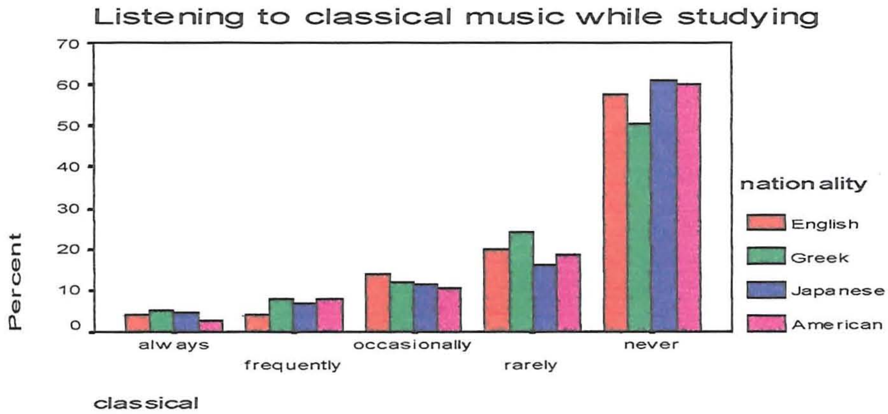
4.5 Listening to different kinds of music while studying

The questions in this section attempted to identify the broad genres of music which students listened to while they were undertaking studying. The types of music presented included those, which were viewed as common across nationalities and those which were perceived as being unique to a particular nationality. The categories were derived from those adopted in the major record stores of each participating country. Two were the same in every country: classical music and rock.

4.5.1 Classical music

The responses of the students indicated that they tended not to listen to classical music while they were studying, and that their nationality was not important in relation to this decision. The overwhelming majority of students whether Greek, Japanese, English or American never listened to classical music while they were studying. There were no statistical differences between the groups. The overall mean was 4.19.

Figure 44

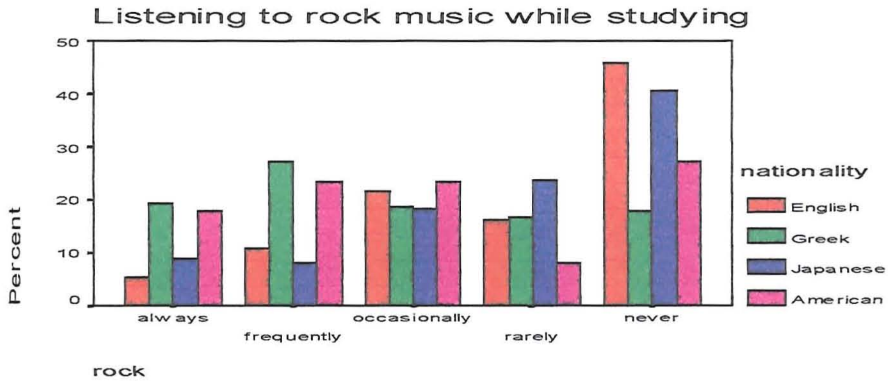


4.5.2 Rock

In contrast, listening to rock music while studying was affected by nationality. The majority of the Greek students reported listening to rock music (mean 2.87, SD = 1.39) , while the majority of the UK students did not (mean = 3.87, SD 1.26). The differences between these groups (English-Americans, English- Greeks, and Japanese- Greeks, and Japanese –Americans) were statistically significant ($F = 21.3$, $df = 3,591$, $p = .0001$).

The Japanese students responded similarly to the UK students (mean = 3.8, SD = 1.3) while the US students responded more similarly to the Greeks (mean = 3.03, SD= 1.46). Overall, the distribution of scores reflects considerable individual diversity in the kind of music listened to while studying. There may also be national differences in the way that the term "rock" music is interpreted.

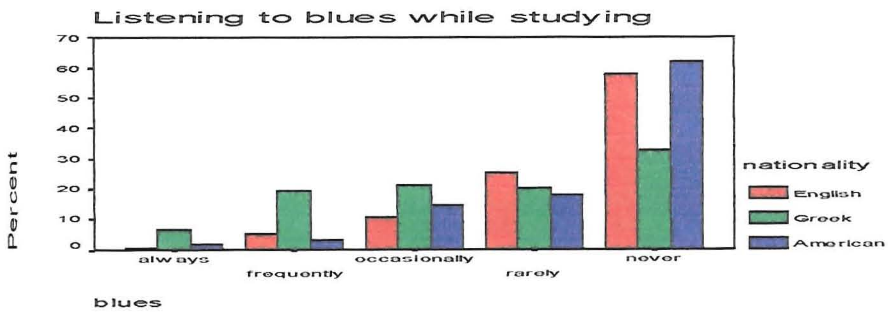
Figure 45



4.5.3 Blues, country, pop, soul and jazz

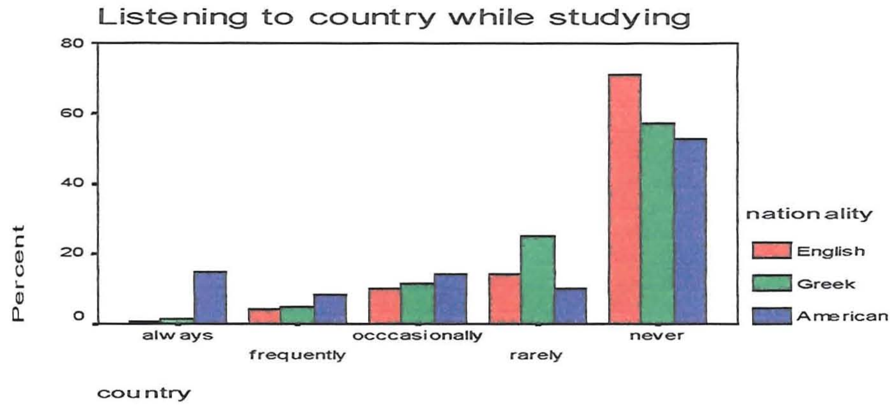
Blues, country, pop, soul and jazz music were common in USA, UK and Greece. In Japan these categories do not appear in the record shops but are included under the heading of popular music. The analysis is therefore restricted to the Western countries. The frequency charts (Figures 46 to 50) show that there are national differences in the types of music which students listen to while studying. The Greek students are more likely to listen to 'blues' music (mean 3.53, SD = 1.3) than the US students (mean = 4.35, SD = .98) or the UK students (mean = 4.35, SD = .92). These differences were statistically significant (F = 27.4, df = 2,446, p = .0001).

Figure 46



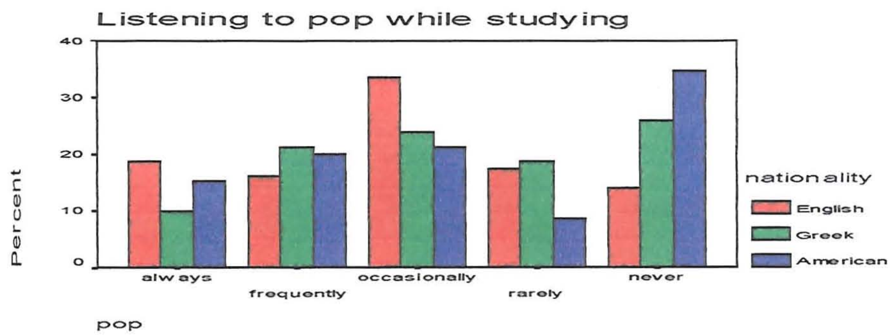
The US students preferred to listen to 'country' music (mean = 3.79, SD = 1.51). This was a less popular options for the UK students (mean 4.51, SD = .88) and the Greek students (mean = 4.3, SD =94). These differences were statistically significant (F = 16. 4, df = 2,444, p = 0001).

Figure 47



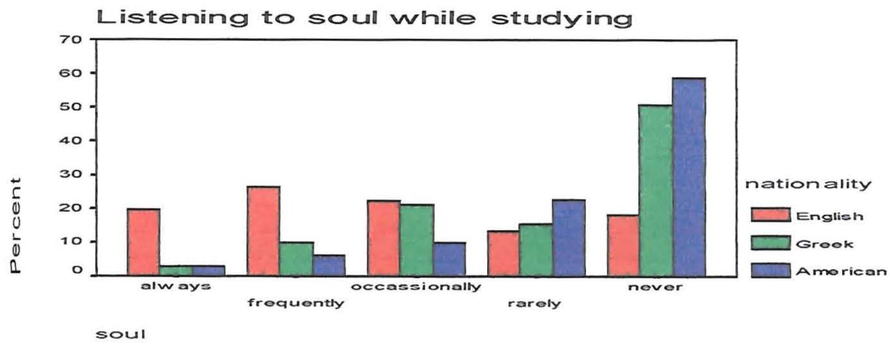
'Pop' music crosses nationalities. There were significant differences between the responses of different nationalities (F=3,6, df=2,449, p=.029). The overall mean was 3.16.

Figure 48



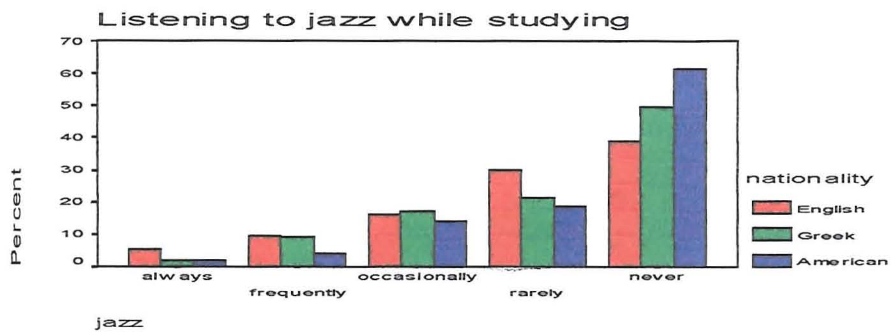
Soul music was more popular with UK students when they were studying (mean 2.84, SD = 1.38) (see figure 49) than with US (mean = 4.29, SD = 1.04) and Greek students (mean = 4.01, SD = 1.17). This difference is statistically significant (F = 59.5, df = 2,444, p = .00001).

Figure 49



The UK students evidenced a tendency to listen to jazz (mean 3.87, SD= 1.19) when studying in comparison with their American (mean 4.33, SD= .99) and Greek (4.07, SD= 1.1) counterparts. These differences were significant (F = 6.8, df = 2,442, p = .001).

Figure 50



To summarise, the English students seem to prefer listening to soul and jazz music while studying more that the Greeks, who prefer rock and blues, and the Americans, who prefer country music. Classical music tends not to be used as background to studying by any nationality, whereas listening to pop music is universal and by far the most often mentioned category.

4.5.4 Easy listening, reggae, folk/world music, dance, gospel

The categories, easy listening, reggae, folk/world music, dance, gospel only appeared in UK and US record shops. There was no significant difference between the reported extent of 'easy listening' between the US and UK students. In contrast there was a difference in listening to reggae music while studying. The UK students reported listening to more reggae music (mean = 3.7, SD = 1.27) while they are studying than the Americans (mean = 4.39, SD = 1.01). These differences are statistically significant ($F = 27.6$, $df = 1,294$, $p = .0001$).

Figure 51

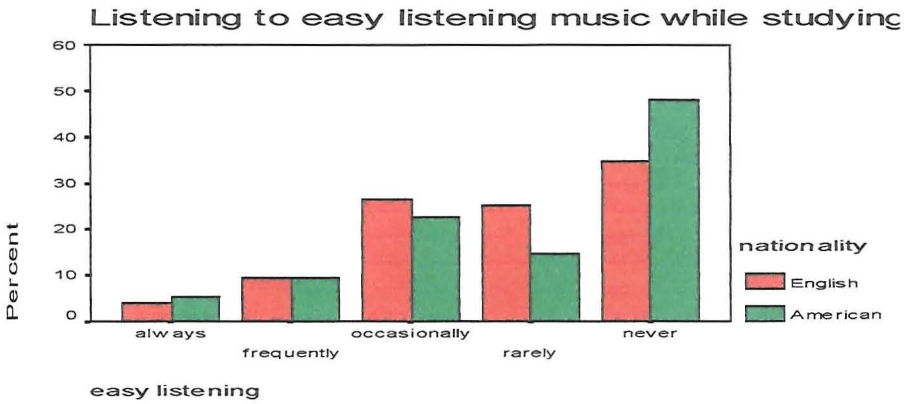


Figure 52

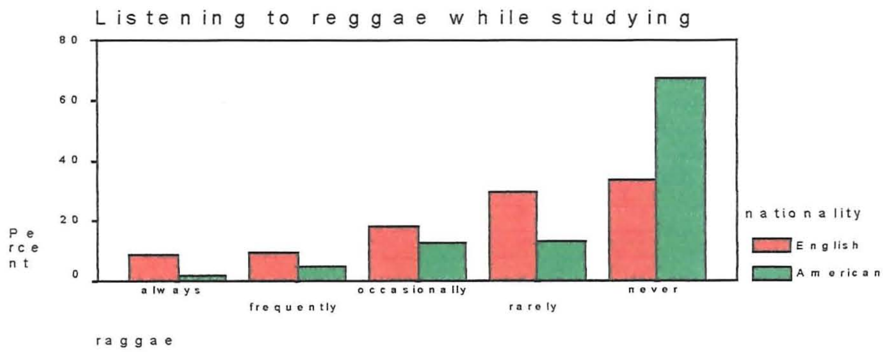
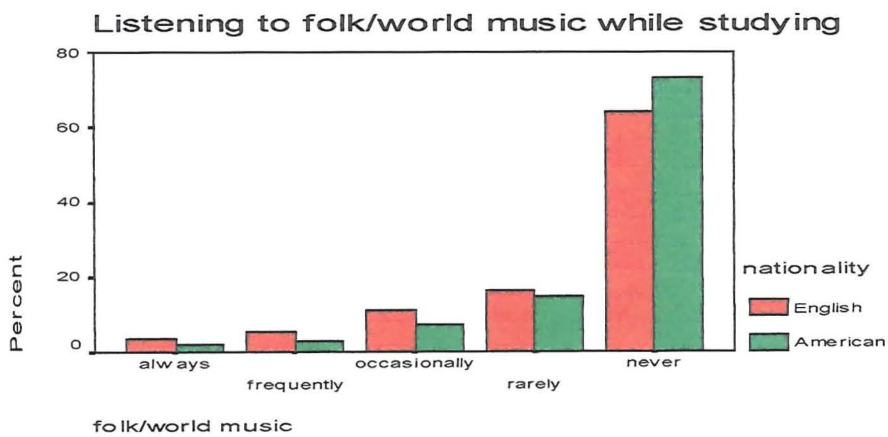


Figure 53



Students of neither nationality tended to listen to folk or world music when studying. Over 60% responded 'never'. The overall mean was 4.43. 'Dance' music was more popular with an overall mean of 3.43, and there was significant difference in response between the US and UK students (F=7.8, df=1,297, p=.006). Overall, gospel music tended not to be popular with the UK (mean 4.02, SD = 1.24) or the US students (mean = 4.59, SD= .85), although the responses from the UK students were significantly higher (F = 17.6, df= 1,292, p = .0001). The frequencies of these responses are outlined in figures 54 and 55.

Figure 54

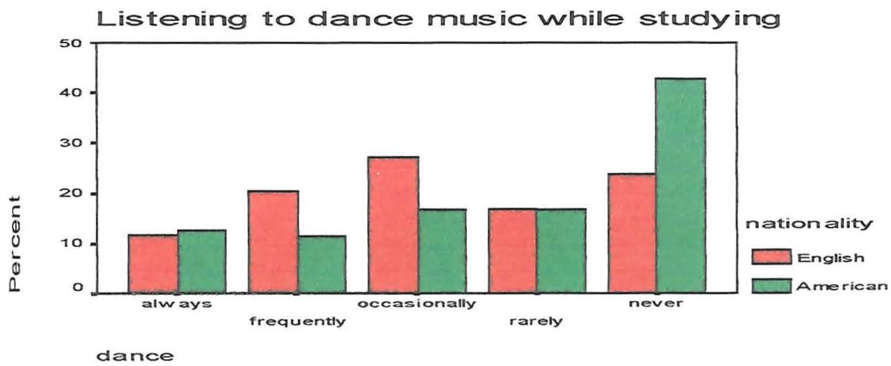
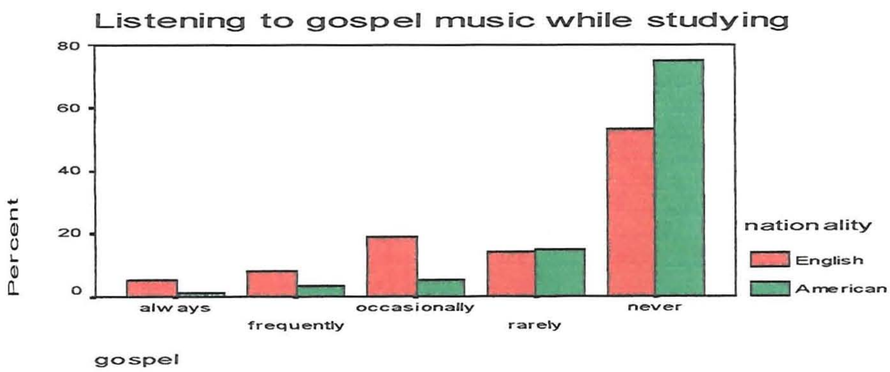


Figure 55



To summarise, the US and UK students adopt as background music similar levels of easy listening, folk/world and dance music. The UK students are more likely to listen to reggae and gospel music than their US counterparts.

4.5.5 Greece: Greek pop, Greek orchestral, Greek folk and Greek popular

Four categories of music were added to the Greek students' questionnaire. These are types of Greek music, which appear in Greek record shops.

Figure 56

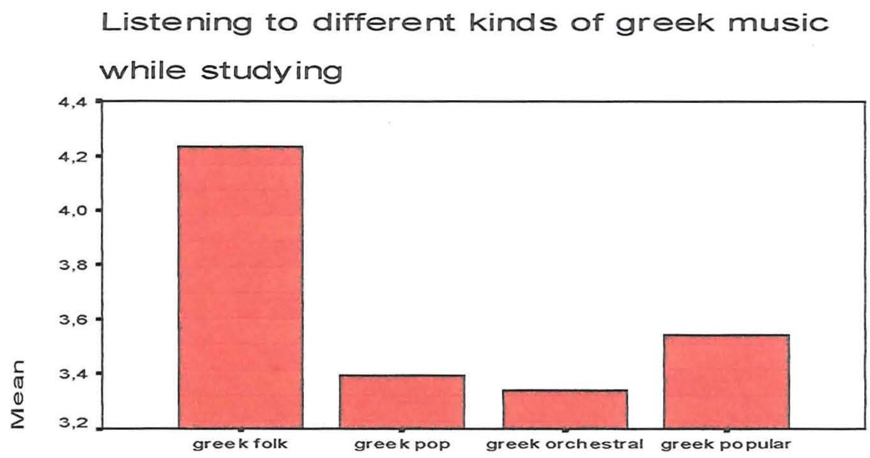
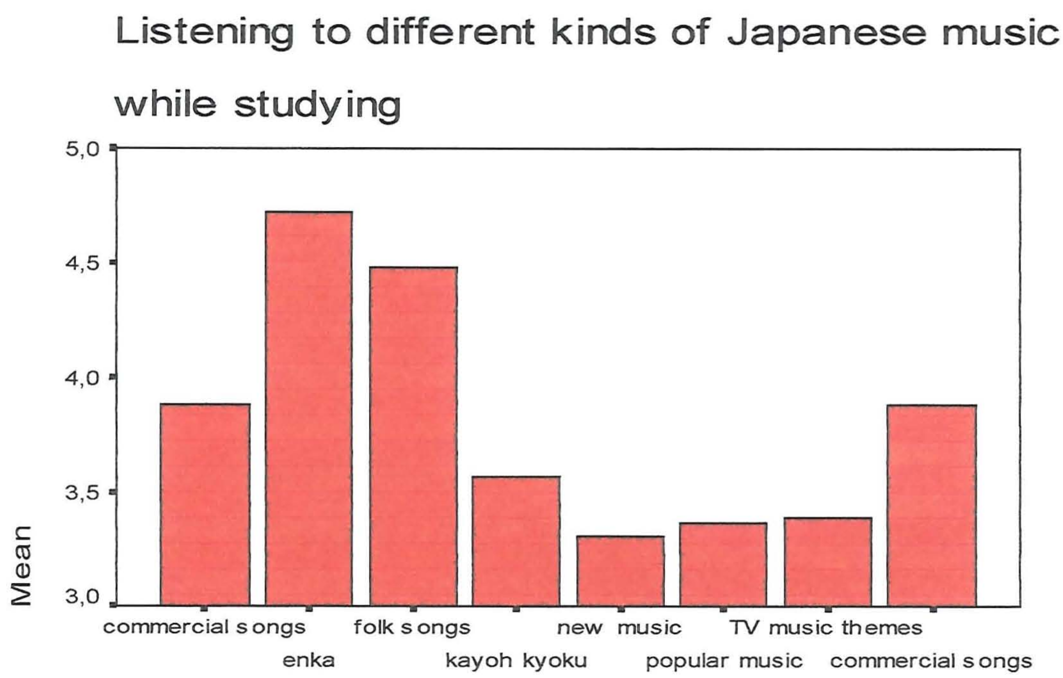


Figure 56 shows that Greek students report listening to Greek pop, orchestral and popular music when they are studying but not Greek folk music. Repeated measures analysis of variance showed that there are statistically significant differences between these kinds of music (F=24.216, df=3, p=.0001).

4.5.6 Japan: Popular music, enka, new music, folk songs, kayoh kykit, commercial songs, TV themes

Figures 57, describes the distribution of the answers of the Japanese students. As can be seen they tend not to listen to music while they are studying, and this is clear on the following graph.

Figure 57



The Japanese students tended not to listen to music while they are studying. When they do they prefer listening to TV themes (m=3.4, sd=1.3), new music (m=3.3, sd=1.7), popular music (m=3.4, sd=1.5), and kayoh kyoku (m=3.3, sd=1.5), more than enka (m=4.7, sd=.7), commercial songs (m=3.8, sd=1.2) or folk songs (m=4.4, sd=.9). Repeated measures analysis of variance showed that there is statistically significant differences between these kinds of music (F=43.9, df=6, p=.0001).

4.5.7 Summary

Question	**UK**		**GREECE**		**JAPAN**		**USA**		**MEAN Overall**	**N**	**F**	**Sig**
While studying I listen to:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
Classical	4.23	1.09	*4.06*	1.20	4.22	1.18	**4.25**	1.10	4.19	596	1.194	.432
Rock	**3.86**	1.26	*2.87*	1.39	3.80	1.30	3.03	1.46	3.39	595	21.313	.0001
Blues	**4.35**	.92	*3.53*	1.30			**4.35**	.98	4.07	450	27.423	.0001
Country	**4.51**	.88	4.33	.94			*3.79*	1.51	4.21	448	16.409	.0001
Easy listening	*3.77*	1.15					**3.91**	1.25	3.84	297	1.244	.266
Folk/world music	*4.32*	1.09					**4.54**	.90	4.43	296	3.487	.059
Reggae	*3.70*	1.27					**4.39**	1.01	4.05	298	27.612	.0001
Pop	*2.92*	1.29	**3.29**	1.33			3.27	1.49	3.16	449	3.586	0.29

Soul	*2.84*	1.38	4.01	1.17			**4.29**	1.04	3.72	448	59.538	.0001
Dance	*3.21*	1.33					**3.65**	1.44	3.43	297	7.795	.006
Gospel	*4.02*	1.24					**4.59**	.85	4.30	296	17.653	.0001
Jazz	*3.87*	1.19	4.07	1.11			**4.33**	.99	4.09	446	6.824	.001
popular music (JP)					3.34	1.51			3.34	147	.000	1.00
Enka(JP)					4.73	.695			4.73	146	.000	1.00
New music (JP)					3.30	1.56			3.30	148	.000	1.00
Folk songs(JP)					4.48	.892			4.48	148	.000	1.00
Kayoh kyoku (JP)					3.59	1.52			3.59	147	.000	1.00
Commercial songs (JP)					3.86	1.17			3.86	145	.000	1.00
TV music themes (JP)					3.37	1.32			3.37	145	.000	1.00
Greek pop			3.36	1.41					3.36	150	.000	1.00
Greek orchestral			3.36	1.39					3.36	149	.000	1.00
Greek popular			3.52	1.43					3.52	149	.000	1.00
Greek folk			4.21	1.03					4.21	149	.000	1.00
Radio	2.84	1.28	3.17	1.40	**4.06**	1.19	*2.19*	1.50	3.24	594	16.527	.0001
Recorded music	*2.62*	1.31	**3.44**	1.31	3.41	1.43	3.17	1.41	3.16	589	7.893	.0001

TABLE 7 : Nationality by the different kinds of music that students listen to while studying
The highest responses in with **BOLD.** and the lowest in with *ITALICS*

Table 7 sets out the different kinds of music played by students when they are studying. When a category was not included in the country's questionnaire, the box is blank.

The following graphs, show the music preferences for each nationality.

Figure 58

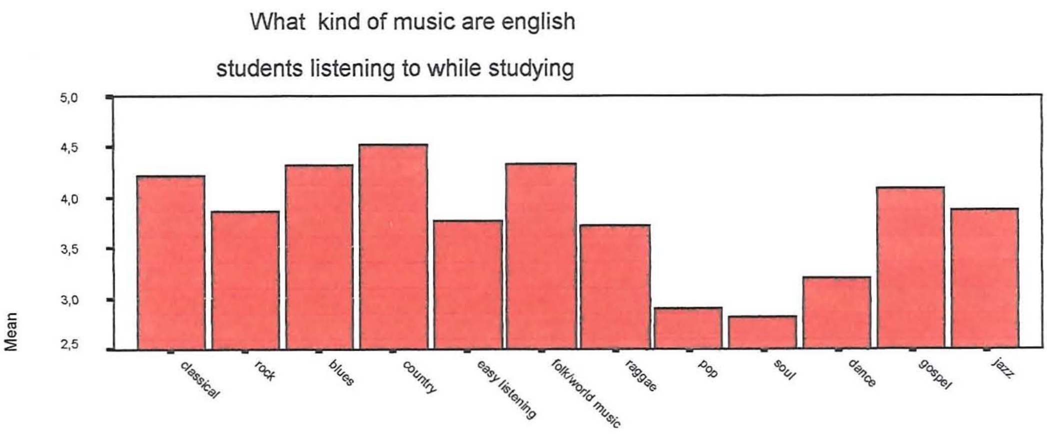


Figure 59

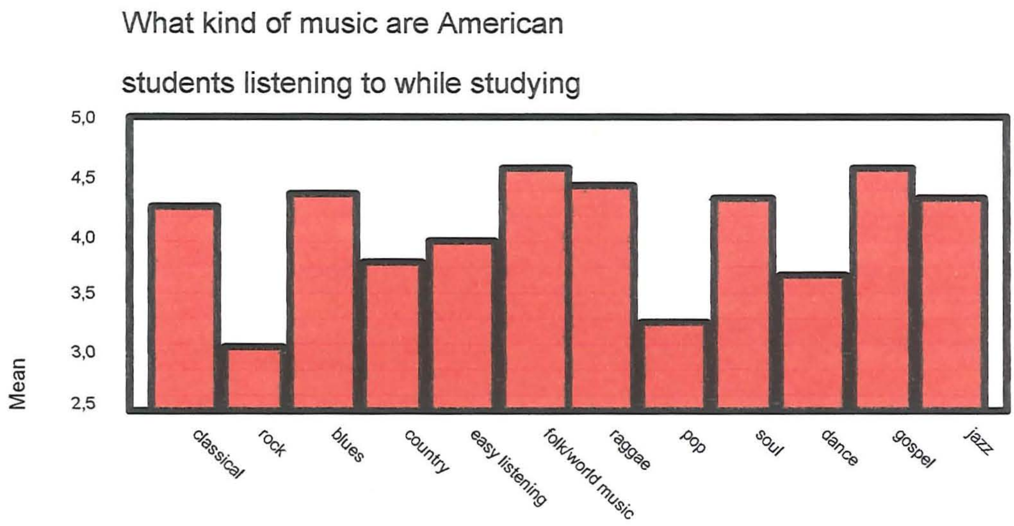


Figure 60

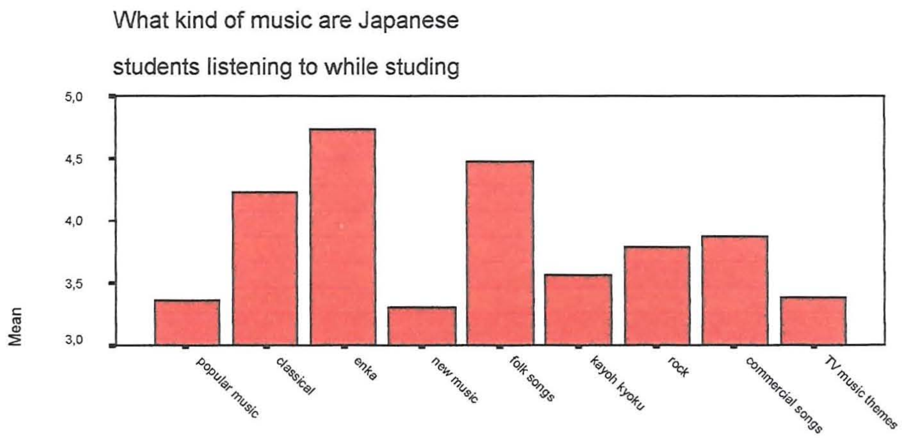
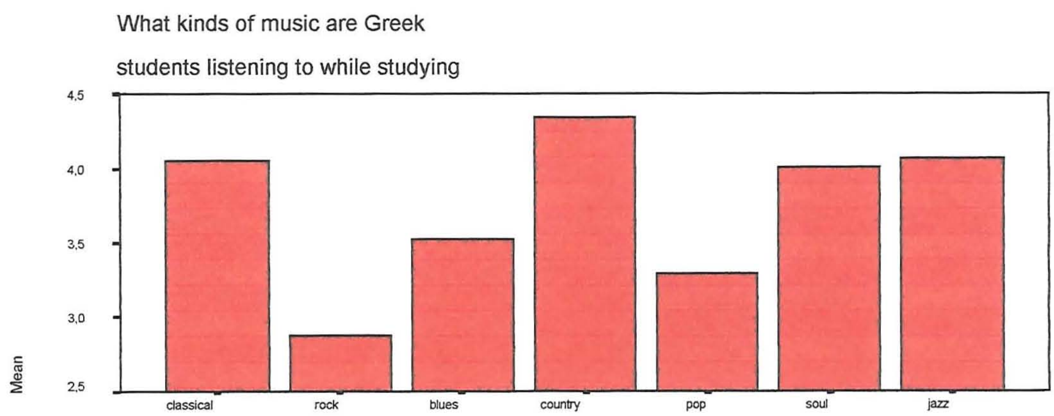


Figure 61



Students were asked if they listened to the radio or recorded music while studying. The distributions of responses are set out in Figures 62 and 63

Figure 62

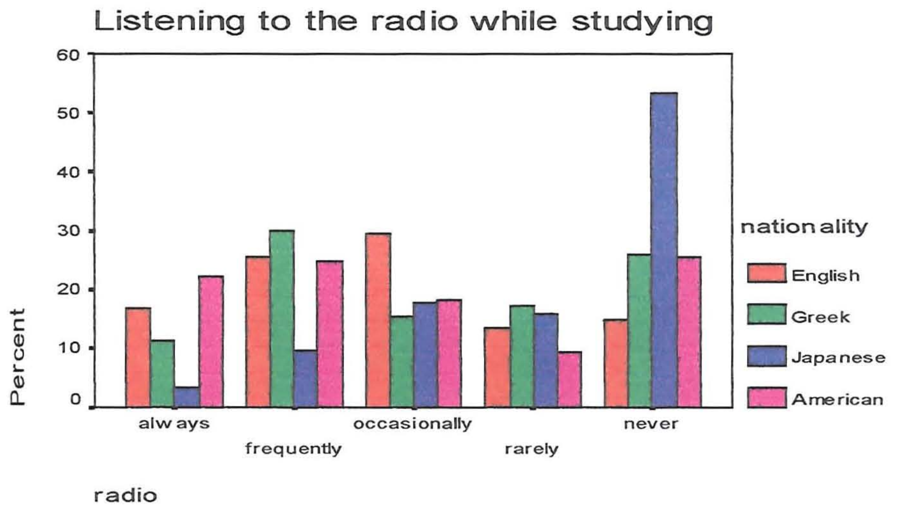
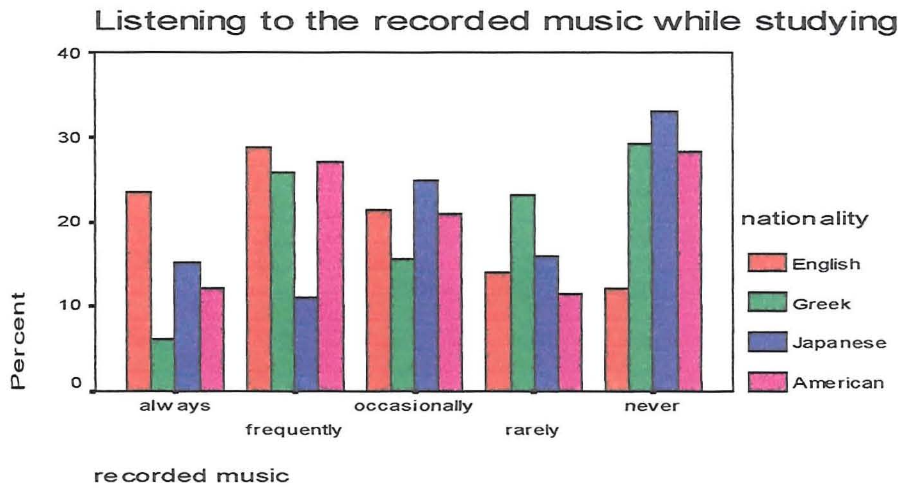


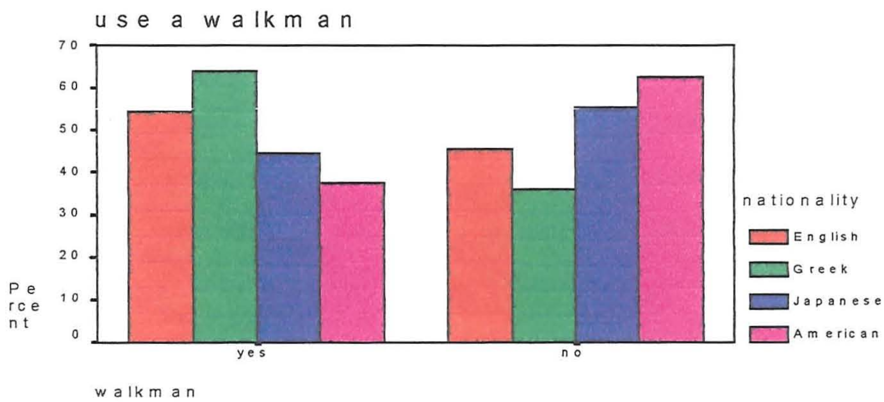
Figure 63



There were statistically significant differences in response to both questions. The US students preferred listening to the radio (mean = 2.19, SD = 1.5), the Japanese rarely did (mean = 4.06, SD= 1.19). The UK and Greek students responded between these two extremes (UK: mean = 2.84, SD =1.28; Greek: mean = 3.17, SD =1.4). These differences were significantly different (F= 16.5, df=3,590, p=.0001). The UK students preferred recorded music (mean 2.62, SD = 1.31), while the Greek students listened to this least (mean = 3.44, SD= 1.31). These differences are statistically significant (F= 7.9, df= 3,585, p = .00001). Overall, repeated measures analysis of variance showed that the differences between students' preferences were statistically significant (F=19.527, df=3, p=.0001) with the English students preferring recorded music and the Japanese preferring the radio.

Related to listening to recorded music or the radio was whether students used a walkman. The majority of the Greek and English students did, while the majority of the Japanese and Americans did not. This difference was statistically significant (F=8.0, df=3,582, p=.0001).

Figure 64



4.6 Influences on listening to music

4.6.1 Mood, music and studying

Questions were addressed to the students to attempt to establish whether their use of background music when studying was affected by their mood.

Figure 65

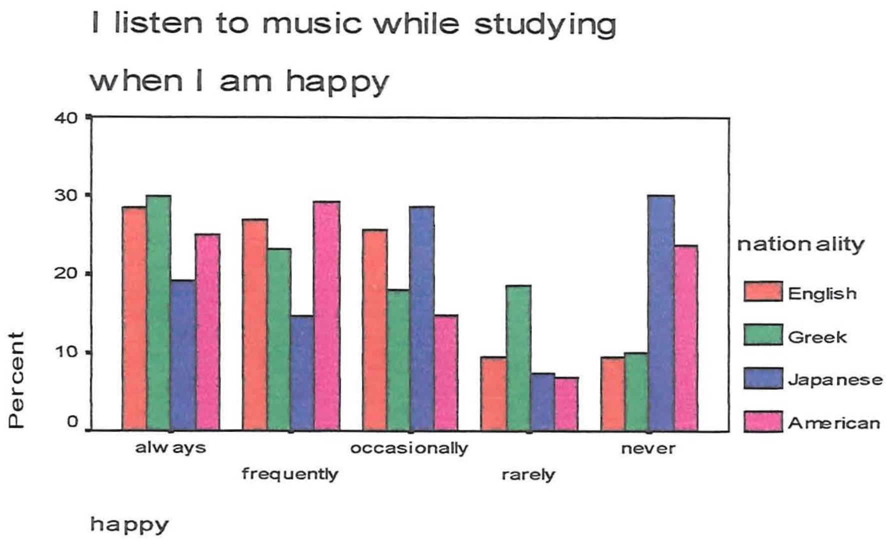
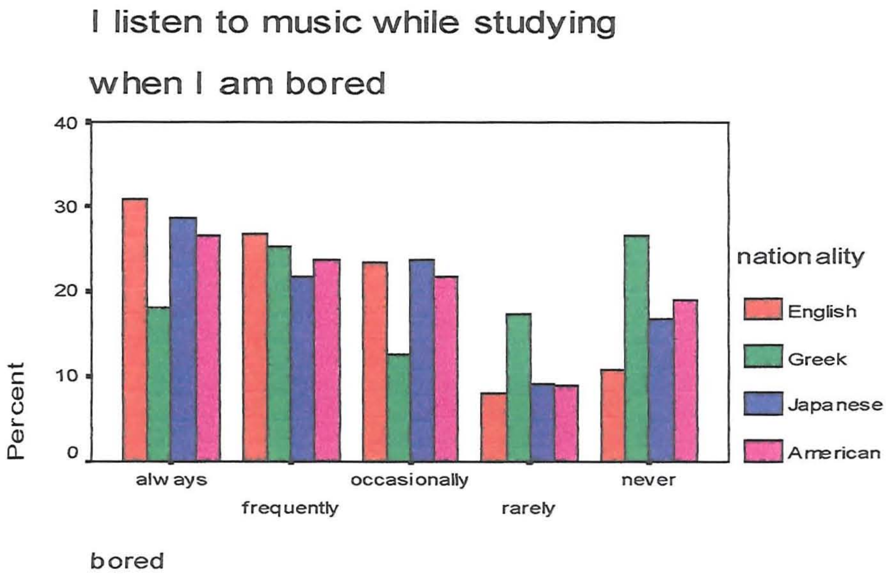


Figure 66



The students reported listening to music while studying when they were happy, and bored. The majority of UK students reported listening to music when they were happy (mean 2.45, SD= 1.26) while Japanese students tended not to (mean 3.15, SD = 1.48). This difference is statistically significant (F = 3.1, df= 3,577, p = .026). The UK students also reported listening to music while studying when they were bored (mean 2.41, SD= 1.29). This contrasts with the Greek students (mean 3.09, SD= 1.49). These differences are statistically significant (F = 3.5, df = 3,585 p = .015). Figures 64 and 65 set out the distributions. Repeated measures analysis of variance between those two and nationality, showed that the difference between them is statistically significant (F=3.637, df=3, p=.013)

4.6.2 Relationship of playing background music to liking or disliking the subject

Students were asked if they listened to music when they liked or disliked the subject that they were studying. The UK students reported listening to music when they liked the subject (mean = 2.93, SD = 1.37) more than the US (mean = 3.09, SD = 1.5),Greek (mean = 3.21, SD= 1.32) and Japanese students (mean = 3.52, SD = 1.42). This difference was not statistically significant.

Similarly the English students listen to music more than the other nationalities when they dislike the subject that they are studying (mean = 2.95, SD = 1.45). The group, which reports this least are the Japanese (mean = 3.66, SD = 1.4). These differences were not statistically significant.

Figure 67

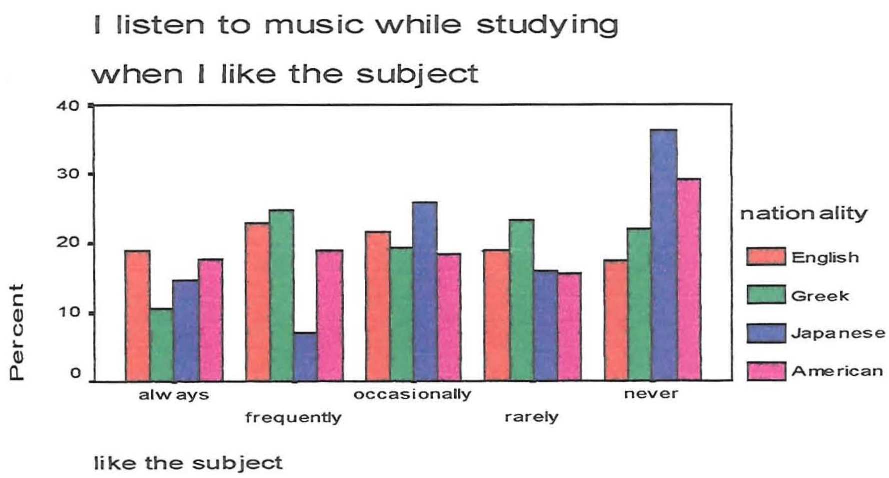
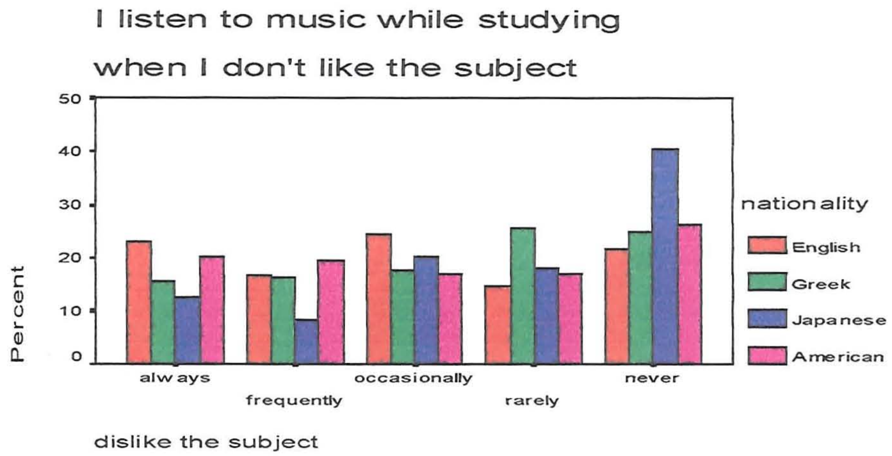


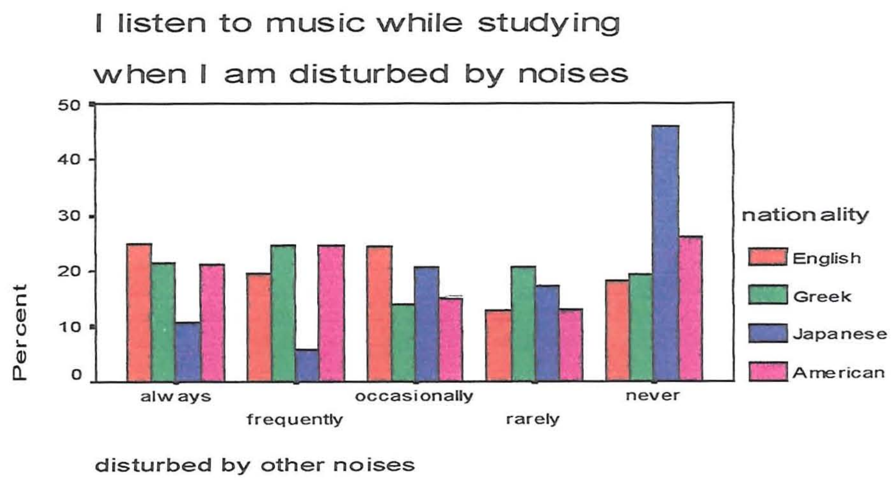
Figure 68



4.7 Metacognitive factors

The questions in this section consider issues relating to metacognition. The first question explores whether students use music to counteract other noise, which might be disturbing them. The majority of the UK (mean 2.8, SD= 1.42), Greek (mean = 2.92, SD= 1.44) and US (mean = 2.98, SD = 1.51) students reported that they would listen to music while they were studying to counteract other disturbing noises. This was rare for the Japanese students (mean = 3.81, SD = 1.35). These differences are significantly different ($F = 9.7$, $df = 3{,}580$, $p = .00001$). Figure 69 shows the distribution of responses.

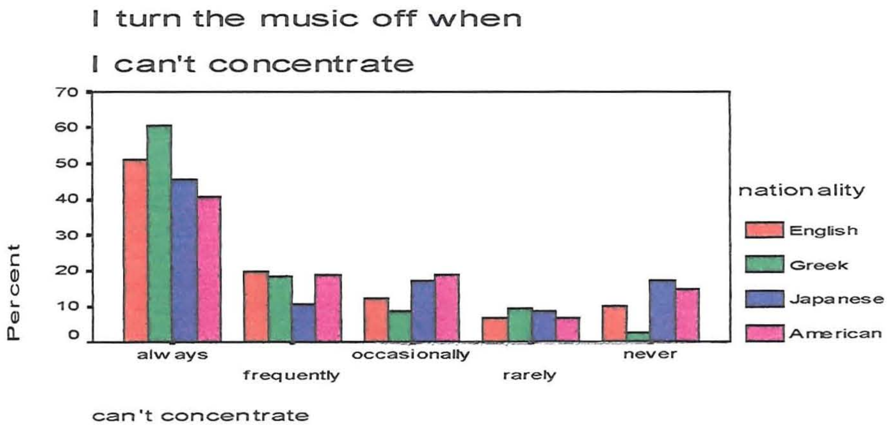
Figure 69



4.7.1 What makes students turn on and off the music

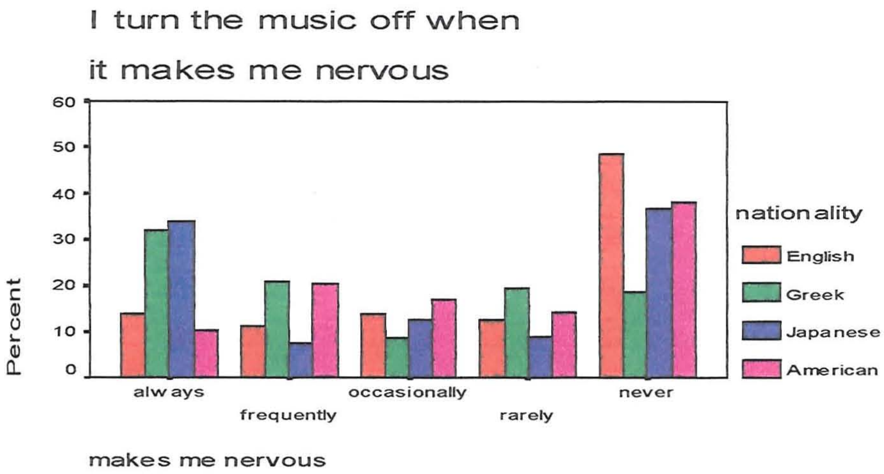
Metacognition was also explored through a series of questions asking the students when they would turn the music off. The first question was related to perceived concentration. The majority of students, regardless of nationality reported that they would turn off the music if they were unable to concentrate. Of the responding students, the Greeks were mostly likely to report doing this (mean = 1.75, SD = 1.12), the Japanese were the least likely (mean = 2.41, SD = 1.55). The US (mean = 2.36, SD = 1.44) and the UK students (mean = 2.05, SD= 1.35) fell in between. These differences were statistically significant (F = 6.4, df = 3,579, p = .00001).

Figure 70



The second question explored issues relating to arousal asking students if they would turn the music off if it made them feel aroused or nervous. The response to this was much less positive from all of the students. The most responsive group were the Greeks (mean = 2.72, SD = 1.54) followed by the Japanese (mean 3.07, SD = 1.74), the US students (mean 3.5, SD = 1.43) and lastly the UK students (mean = 3.71, SD = 11.5). These differences were statistically significant (F = 7.5, df = 3,580, p = .0001).

Figure 71



The Greek students were the most likely to report turning off music if they felt they were unable to learn while it was playing (mean = 2.2, SD = 1.3) followed by the UK (mean = 2.69, SD = 1.56), US (mean 2.76, SD = 1.55) and Japanese students (mean =2.97, SD = 1.66). These differences were statistically significant (F = 5.2, df = 3,584 p = .002).

Figure 72

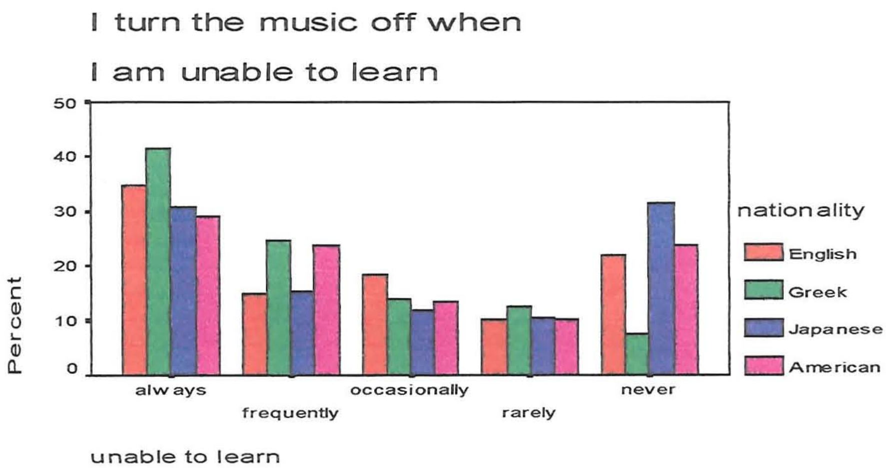
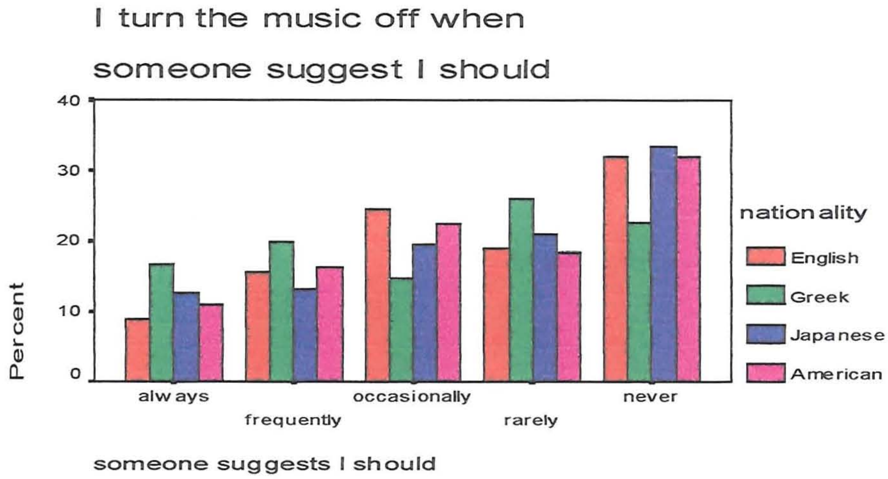


Figure 73



The students were asked if they would turn off the music if someone suggested that they should. There were statistically significant differences between nationalities in response to this question (F=3.3, df=3,587, p=.020). Figure 73 illustrates the distribution of responses.

4.7.2 What factors influence the students' decision to listen to music while studying

Moreover, the students were asked 'when they are choosing to listen to music while studying what factors they think that influence them'.

Figure 74

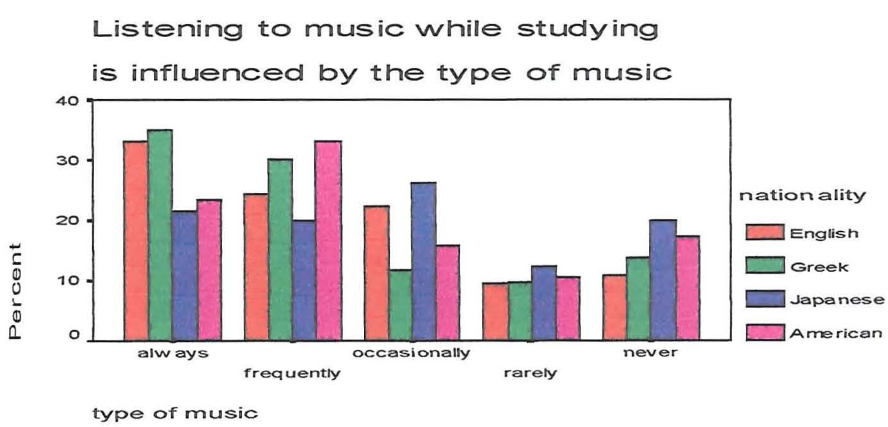


Figure 75

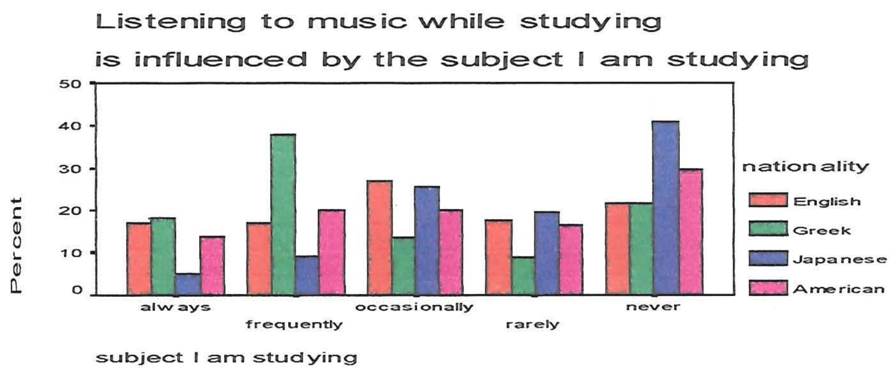


Figure 76

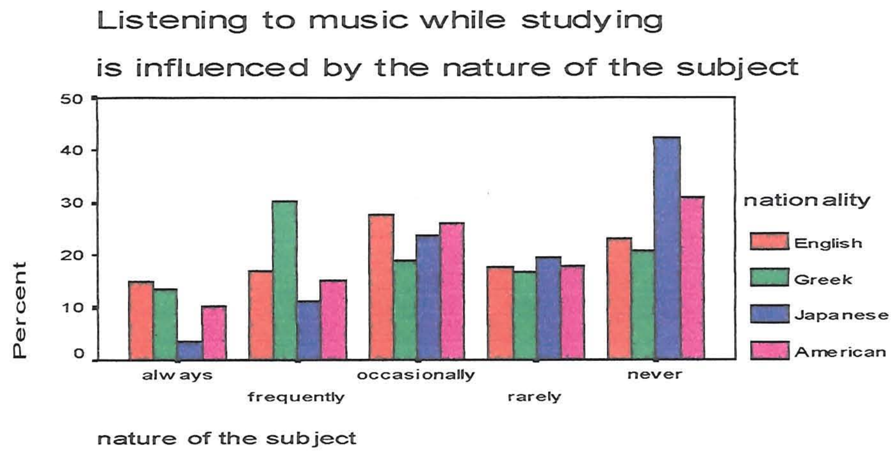
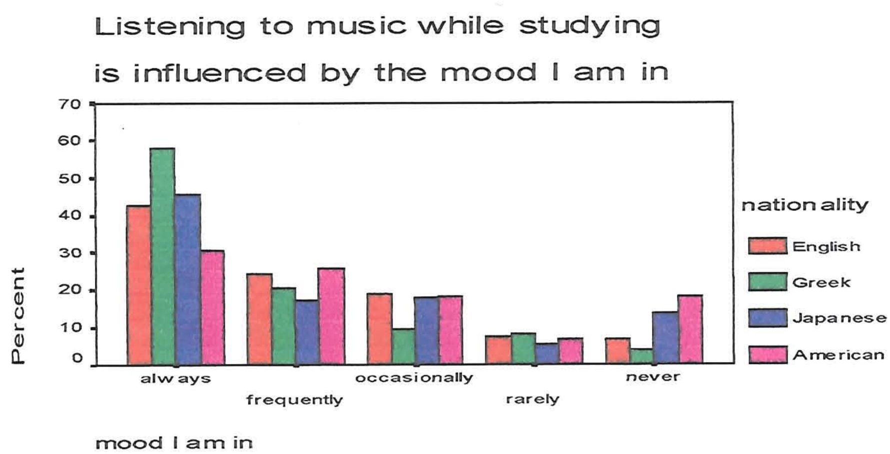


Figure 77



Several factors appear to influence students' decisions about listening to music while they are studying. They indicated that they are influenced by the type of music that is playing. This particularly applied to the Greeks (mean = 2.37, SD = 1.4) with the Japanese being least affected (mean = 2.89, SD = 1.4). These differences are statistically significant (F = 3.3, df = 3,565, p = .021). Another important influence is that subject being studied and the nature of that subject (see figures 75 and 76 for details). The Greek students were most influenced by both of these factors and the Japanese the least (see Table 8 for the means). These differences were statistically significant (see table 8 for details). Mood is another important factor for the Greek students, less so for the other groups of students, in particular the Japanese (see table 8 for details).

4.7.3 Summary

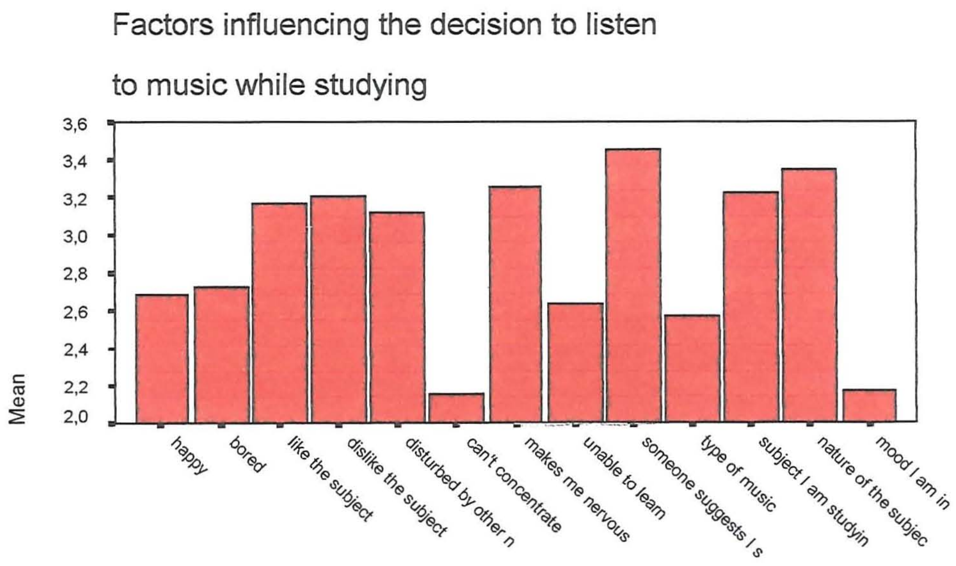
	UK		GREECE		JAPAN		USA		MEAN	N	F	SIG
Question	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	**Overall**			
I listen to music when I am happy	*2.45*	1.26	2.55	1.35	**3.15**	1.48	2.75	1.51	2.71	581	3.126	.026
I listen to music when I am bored	*2.41*	1.29	**3.09**	1.49	2.64	1.42	2.70	1.44	2.71	589	3.525	.015
I listen to music when I like the subject	*2.93*	1.37	3.21	1.32	**3.52**	1.42	3.20	1.48	3.21	588	1.831	1.41
I listen to music when I dislike the subject	*2.95*	1.45	3.28	1.40	**3.66**	1.40	3.09	1.50	3.25	583	2.448	.063
I listen to music when I am disturbed by other noises	*2.80*	1.42	2.92	1.44	**3.81**	1.35	2.98	1.51	3.12	584	9.661	.0001
I turn the music off when I can't concentrate	*2.05*	1.35	1.75	1.12	**2.41**	1.55	2.36	1.44	2.14	583	6.369	.0001
I turn the music off when makes me nervous	3.71	1.50	*2.72*	1.54	3.07	1.74	**3.50**	1.43	3.24	584	7.519	.0001
I turn the music off when unable to learn	2.69	1.56	*2.20*	1.30	**2.97**	1.66	2.76	1.55	2.65	588	5.178	.002
I turn the music off when someone suggests I should	**3.50**	1.32	*3.18*	1.42	**3.50**	1.40	3.44	1.37	3.40	587	3.319	.020

Listening to music depends on the type of music	2.41	1.32	*2.37*	1.40	**2.89**	1.41	2.65	1.40	2.57	569	3.293	.021
Listening to music depends on the subject I am studying	3.10	1.37	*2.78*	1.42	**3.83**	1.20	3.28	1.43	3.24	585	8.261	.0001
Listening to music depends on the nature of the subject	3.17	1.36	*3.01*	1.36	**3.86**	1.19	3.44	1.34	3.37	587	6.919	.0001
Listening to music depends on the mood I am in	2.11	1.23	*1.79*	1.15	2.25	1.43	**2.56**	1.45	2.18	590	6.599	.0001

TABLE 8 : Nationality by the decision of listening to music while studying
The highest responses are with **BOLD.** and the lowest are with *ITALICS*

Table 8 gives the details of the means for the factors which may influence listening to music while studying and the details of the multivariate analysis of variance. The group that reported listening the least, the Japanese, tended to make the lowest responses to these questions. The Greeks, those who tend to listen the most, tended to be more influenced by most of the factors. Most of the reported differences were statistically significant.

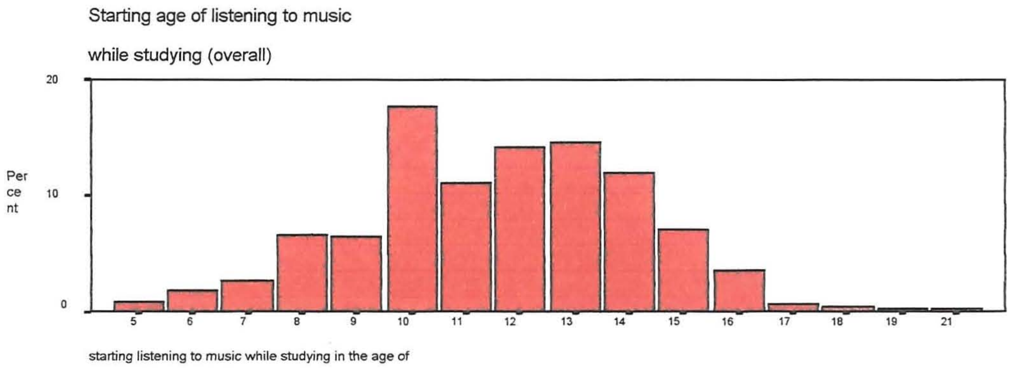
Figure 78



4.8 Age of starting to listen to music while studying

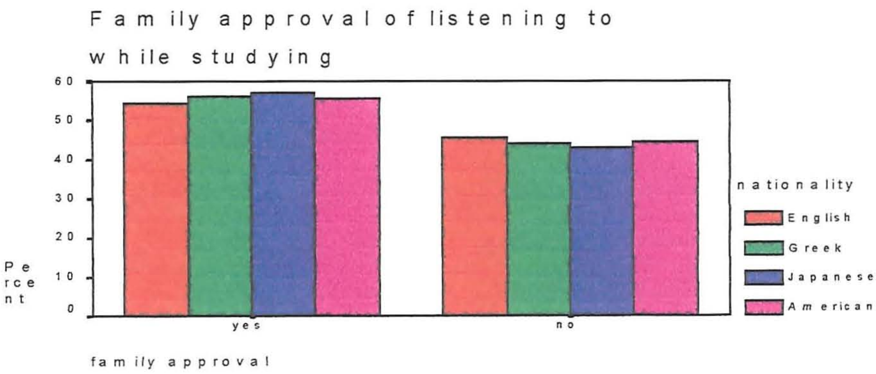
Students were asked when they started listening to music while studying. The means for the nationalities were: US students, 11.15; Greeks 12.17; UK students the 11.41; and the Japanese 11.73 (the overall mean was 11.61, and the sd=2.55). These differences were statistically significant (F=3.367, df=3,448, p=.019).

Figure 79



Some issues were examined with chi square test and these were the questions that referred to whether students' families approved of them listening to music while studying. More than half reported that their parents approved. Figure 80 illustrates the distribution of responses. There were no significant differences between nationalities.

Figure 80



More than 80% of all students reported that they studied alone, again this was not statistically significant. Of those sharing a study room, 38% said that they and their roommates listened to music, 62% said they did not. This was not statistically significant.

4.9 CONCLUSIONS

The findings in this chapter have revealed communality and difference in relation to students listening to music while studying. Overall trends show that most students: listen to music in their free time; listened to music when they were children; listen to music at home in the evening; and listen to music while travelling. Students reported rarely listen to music while revising for examinations, memorising material or learning a foreign language. Many believe that music can act to 'keep them company', alleviate boredom and relax them and that it can interfere by arousing them too much. Most turn off the music when they feel it is interfering with their concentration. Most indicate that listening to music while studying is influenced by the mood they are in. They rarely listen to classical music when studying. They more usually listen to 'pop' music.

The evidence suggests that nationality is an important factor in influencing students' listening habits while studying. It influences students' every day listening to music, their decisions about listening to music while studying, their perceptions of the effects of listening to music while studying, specifically whether music helps concentration, keeps them company, relaxes them, interferes so that they can't concentrate, or interferes because they sing along. The type of music that they listen to is also influenced by nationality as is the decision as to whether they listen to radio or recorded music. Cultural factors appear to affect the way that music is used to influence mood and ameliorate other distractions. It also appears to influence the starting age of listening to background music.

The Greek students, in most cases, represent the group who most listen to music in their everyday lives and while studying. They report listening to more music in their free time, as children, when they are eating and when they take a bath. They also report listening to more music than the rest of the students while they are writing, doing coursework, thinking, and learning a foreign language. They believe, more than the other students, that music keeps them company and relaxes them. Alongside this is an awareness that music can also detract from their studying and a preparedness to switch it off if necessary. Greek students report listening to a wide range of music while studying and more often listen to the radio.

The Japanese students represent the other end of the continuum. They listen to less music in their every day life and less music while studying than the other groups. Overall, they express more negative perceptions of the effects of music on studying. The UK and US students, in most cases, fall between these two extremes and share similar listening habits and uses of music in studying, although there were some exceptions.

The wide variety of responses to many of the questions also suggests that there is considerable individual variation. These may relate to age, gender or degree of involvement in musical activities. These will be explored in the next chapters.

CHAPTER 5

FINDINGS FOR AGE

Chapter 5
Findings for Age

5.1 Music in everyday life

As in the previous chapter multivariate analysis of variance was undertaken followed by Bonferroni post hoc tests. This section will explore the responses of the three different age groups to questions about listening to music in everyday life. The three groups of students were: 12-13 year old students described as secondary school students, 16-17 year olds described as advanced secondary school students, and 20-21 year old students described as university students. As mentioned earlier, these age groups were chosen, since at 12-13 years students were on the secondary school, and in the beginning of their adolescence, 16-18 because they are studying to enter college, and in the middle of adolescence, and 20-21, when they are in university.

5.1.1 Listening to music in free time

Figure 81

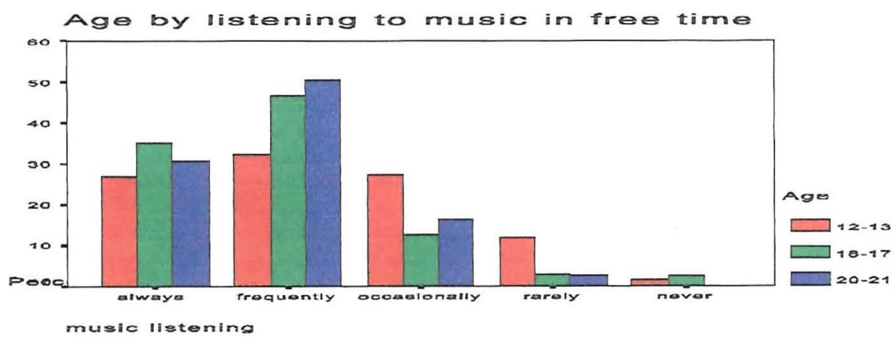
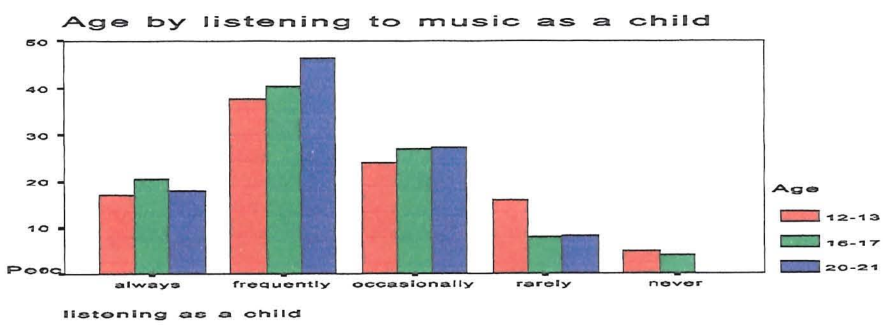


Figure 81 shows how frequently each age group of students reported listening to music in their free time. The means for the three groups are: secondary students 2.29 (SD = 1.04), advanced secondary students 1.91 (SD = .9) and university students 1.91 (SD = .75). These differences were statistically significant and show that the older students report listening to music more in their free time than the secondary school students.

5.1.2 Listening to music as a child

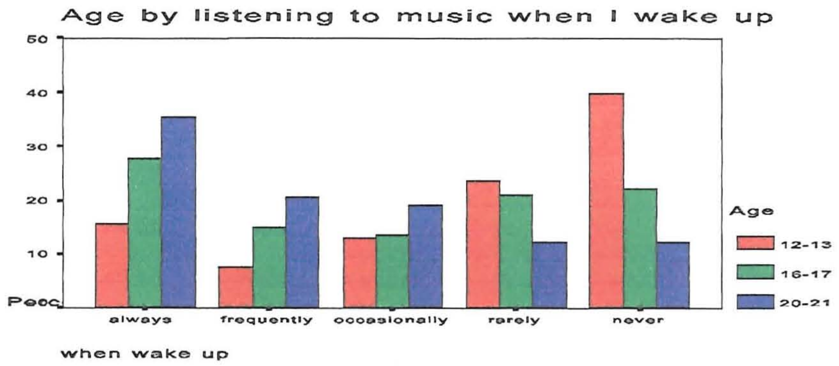
Figure 82 indicates that the older students reported listening to music as children more than the younger groups of students. The mean of the secondary school students was 2.54 (SD = 1.1) the advanced secondary students 2.35 (SD = 1.02 and the university students 2.26 (SD = .85). This difference was statistically significant (F = 6.3, df = 2,590, p = .002). This may be a genuine finding, although it is possible that the memories of the older students regarding their childhood are less accurate because of the greater length of elapsed time.

Figure 82



5.1.3 Listening to music when I wake up

Figure 83

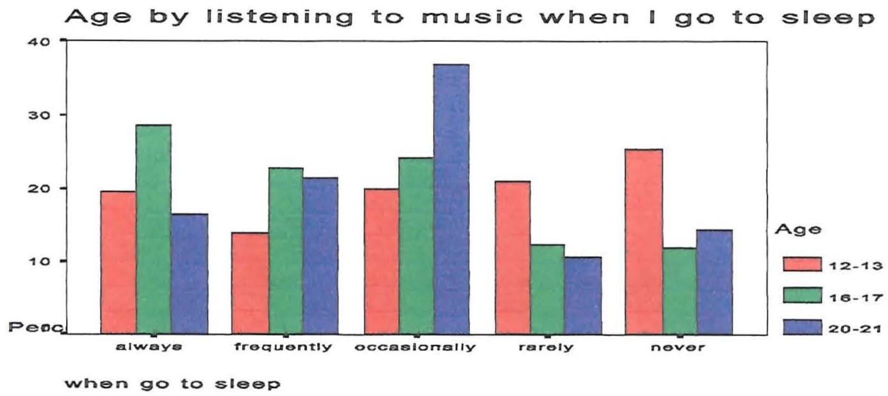


The university students reported listening to music more when they wake up (mean 2.45 SD = 1.4) than the advanced secondary students (mean = 2.95, SD = 1.54) and the secondary school students (mean = 3.65, SD = 1.46). These differences were statistically significant (F = 37.8, df=2,587, P = .00001).

5.1.4 Listening to music when I go to sleep

The advanced secondary school students reported listening to music more when they were going to sleep (mean = 2.56, SD = 1.34) than the secondary students (3.19, SD = 1.46) and the university students (mean = 2.85, SD= 1.24). These differences were statistically significant (F = 13.9, df = 2,594, p = .00001).

Figure 84



5.1.5 Listening to music when I am home in morning/evening

Figures 85 and 86 show that the majority of the university students reported listening to music more when they were at home in the morning (mean 2.55, SD = 1.18) than the secondary (mean 3.08, SD= 1.45) and advanced secondary students (mean = 2.76, SD = 1.45). These differences were statistically significant (F = 10.4, df=2,589, p=.00001). In contrast, the advanced secondary school students reported listening to music more when they were home in the evening (mean 2.25, SD = 1.18) than the secondary (mean = 2.39, SD = 1.21) and the university students (mean 2.66, SD = 1.15). These differences were statistically significant (F = 4.5, df=2,596, p=.011). These differences may be explained by the different demands made on students dependent on the phase of education that they were in. Attendance at school is obligatory, attendance at lectures is not and university students also have more independent study time than school students.

Figure 85

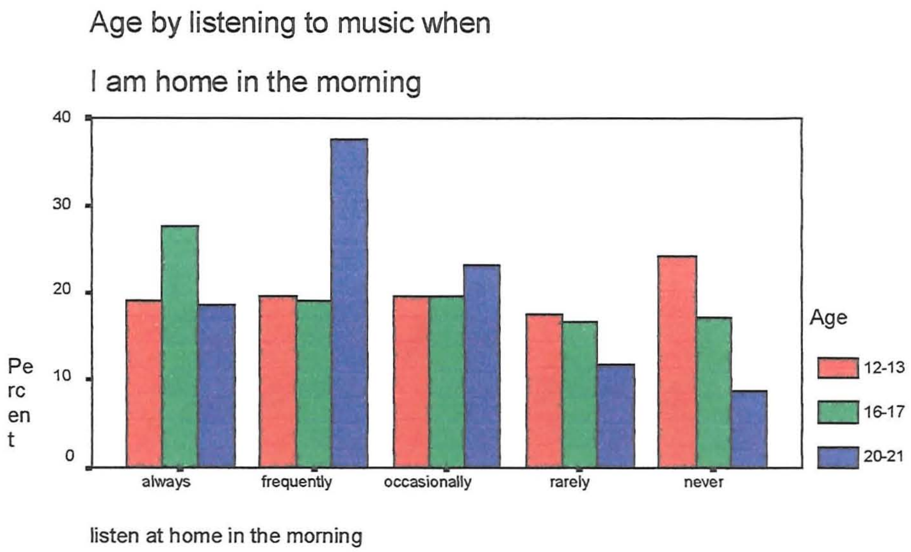
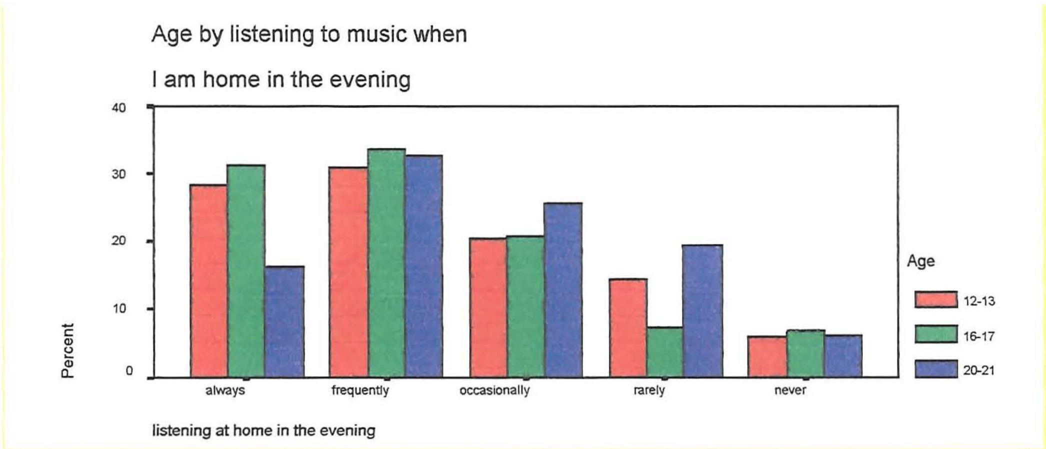


Figure 86



5.1.6 Listening to music when I am eating and taking a bath

Generally, the students reported rarely listening to music either when eating or taking a bath. The university students were the most frequent listeners when eating (mean = 3.29 SD= 1.27) and taking a bath (mean = 3.32, SD = 1.51). The secondary school students reported least frequently listening while eating (mean 3.83, SD = 1.25) and bathing (mean

= 3.91, SD = 1.42). These differences were both statistically significant at the .00001 level.

Figure 87

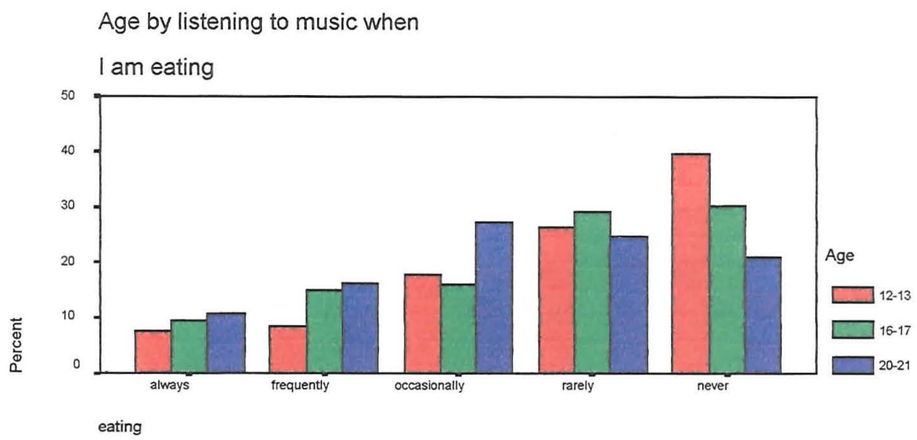
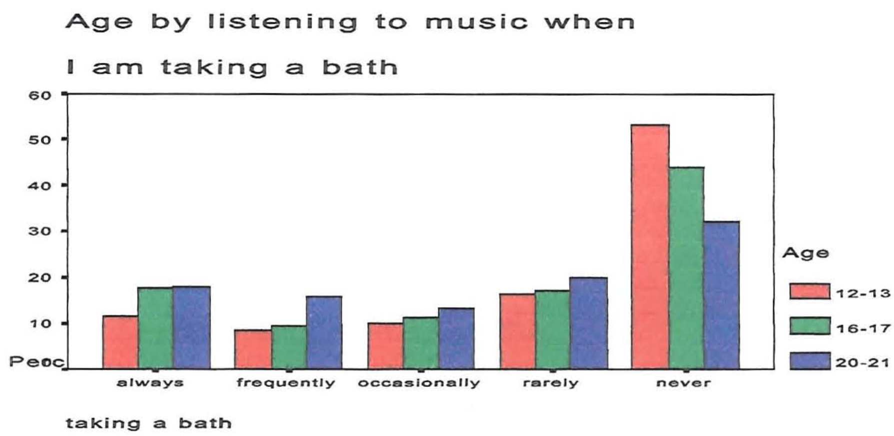


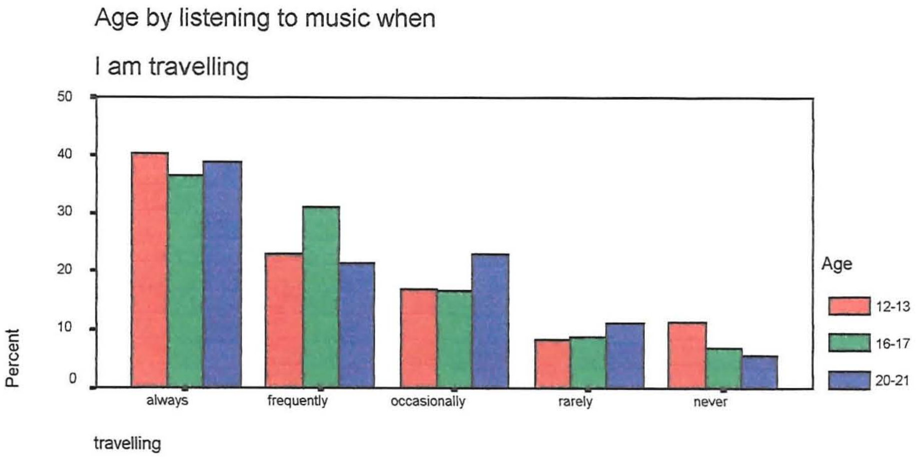
Figure 88



5.1. 7 Listening to music when I am travelling

There was no significant difference in the extent to which music was listened to while the students were travelling. The means ranged from 2.19 to 2.28. This was a frequent time of listening for all the students regardless of age.

Figure 89



5.1.8 Summary

Table 9 gives the means and standard deviations for the questions related to listening in everyday life and the details of the multivariate analysis of variance. Figures 81 to 89 show the distributions of responses for each question. Figure 90 in Chapter 5 provided a graphic overview of the differences in overall means between the various times and activities when music was listened to in everyday life.

QUESTION	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD	MEAN	SD				
Music listening in free time	**2.29**	1.04	*1.91*	.90	*1.91*	.75	2.04	600	12.306	.0001
Listening to music as a child	**2.54**	1.10	2.35	1.02	*2.26*	.85	2.38	593	6.315	.002
Listening to music when wake up	**3.65**	1.46	2.95	1.54	*2.45*	1.40	3.02	590	37.772	.0001
Listening to music when go to sleep	**3.19**	1.46	*2.56*	1.34	2.85	1.24	2.87	597	13.930	.0001
Listen to music at home in the morning	**3.08**	1.45	2.76	1.45	*2.55*	1.18	2.80	592	10.393	.0001

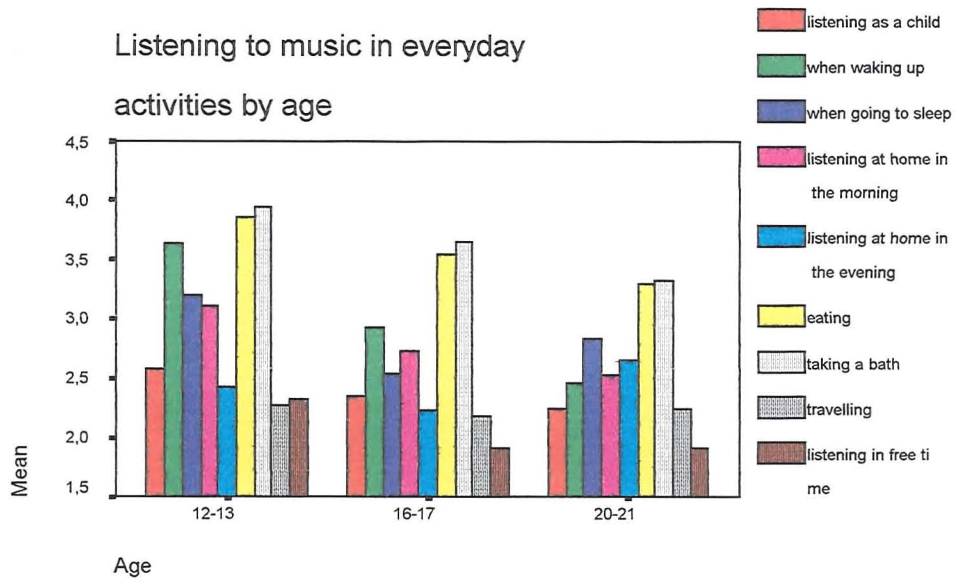
	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students					
Listening to music at home in the evening	2.39	1.21	*2.25*	1.18	**2.66**	1.15	2.43	599	4.536	.011
Listening to music while eating	**3.83**	1.25	3.55	1.32	*3.29*	1.27	3.56	595	11.375	.0001
Listening to music when I am taking a bath	**3.91**	1.42	3.60	1.55	*3.32*	1.51	3.62	594	10.987	.0001
Listening to music when I am travelling	**2.28**	1.37	*2.19*	1.22	2.23	1.23	2.23	600	.287	.750

TABLE 9 : Age by listening to music in everyday activities
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

To summarise the overall age differences, the secondary school students tended to listen to music less often than their older counterparts, although there was some variability depending on the particular time of day. University students reported listening to music more in their free time, as children, when they were waking up, when they were at home in the morning, and when they were eating. Advanced secondary school students reported listening to music more when they went to sleep and when they were at home in the evening. There were no significant differences in relation to travelling.

A repeated measures analysis of variance indicated significant overall differences between the reported listening activities (F=162.086, df=8, p=.05). The significant differences between the age groups have been reported above. There were significant interactions between age and listening to music with everyday activities (F=8.302, df=14, p=.00001).

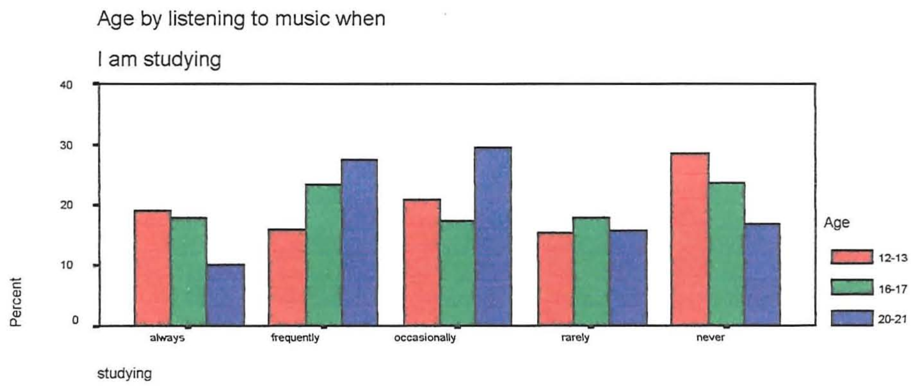
Figure 90



5.2 Music, studying and age

As reported in Chapter 4, 77% of students reported listening to music while they were studying. There were no significant age differences in the reporting of listening to music while studying. Figure 91 outlines the distribution of responses.

Figure 91



5.2.1 Listening to music while revising, writing, memorising, reading, and editing work previously completed

There were significant differences in relation to listening to music while writing (F=4.3, df=2,600, p=.014), editing work previously completed (F=3.2, df=2,596, p=.040) and for revising for exams (F=9.5, df=2,598, p=.0001), but there were no significant age differences in listening to music when memorising, reading, or editing previously completed work. The distributions are shown in Figures 92 to 96. The pattern of distributions is similar to that outlined in Chapter 4 in relation to nationality differences.

Figure 92

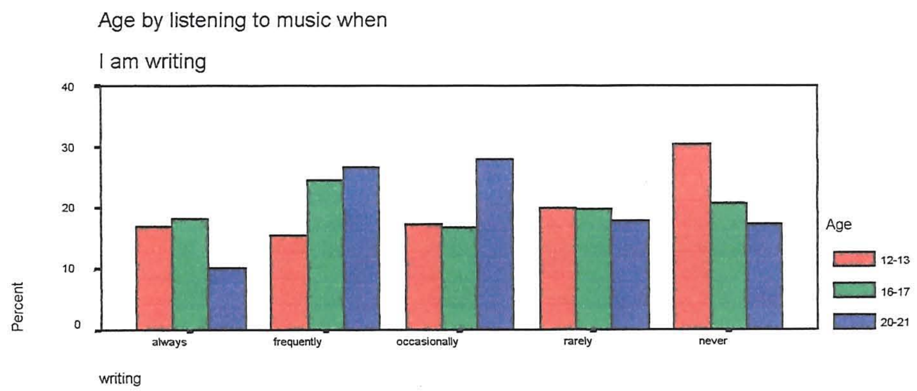


Figure 93

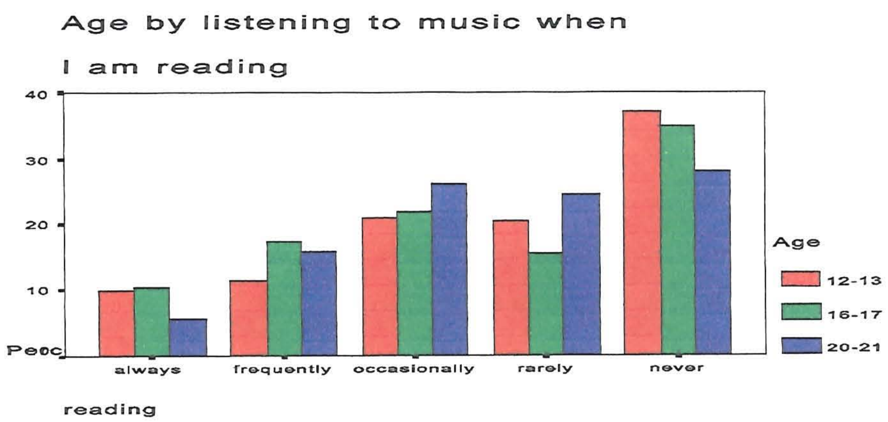


Figure 94

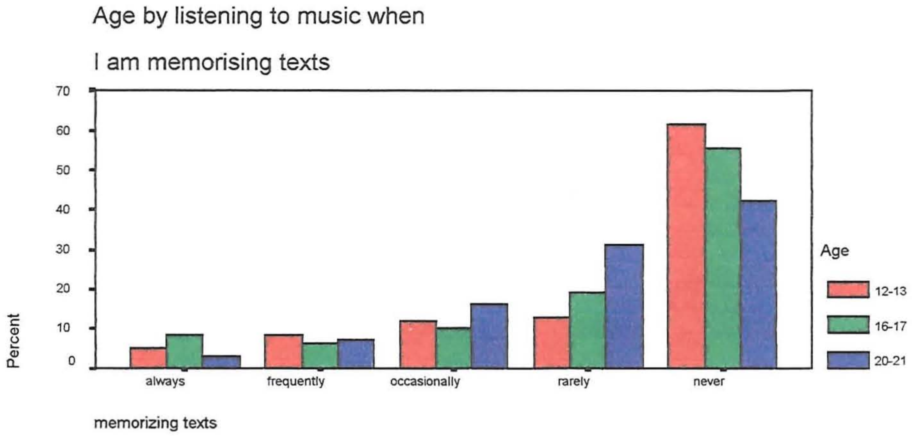


Figure 95

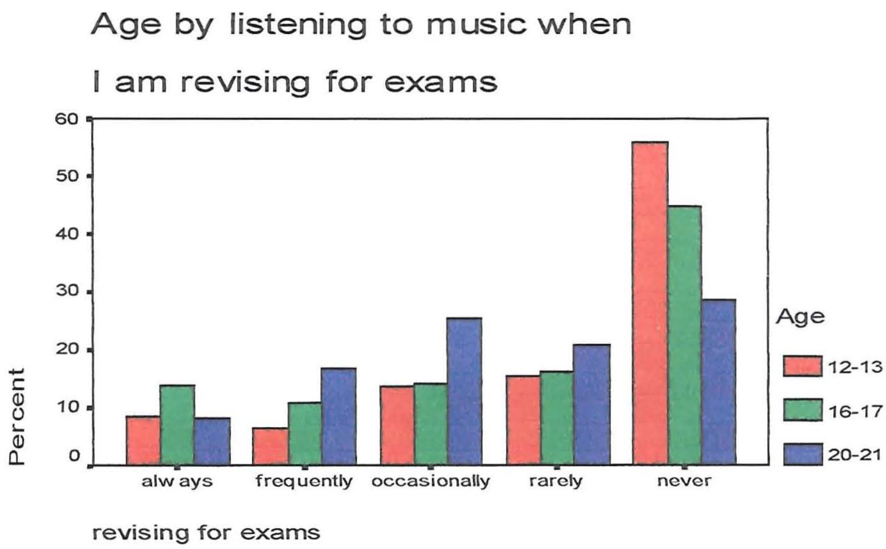
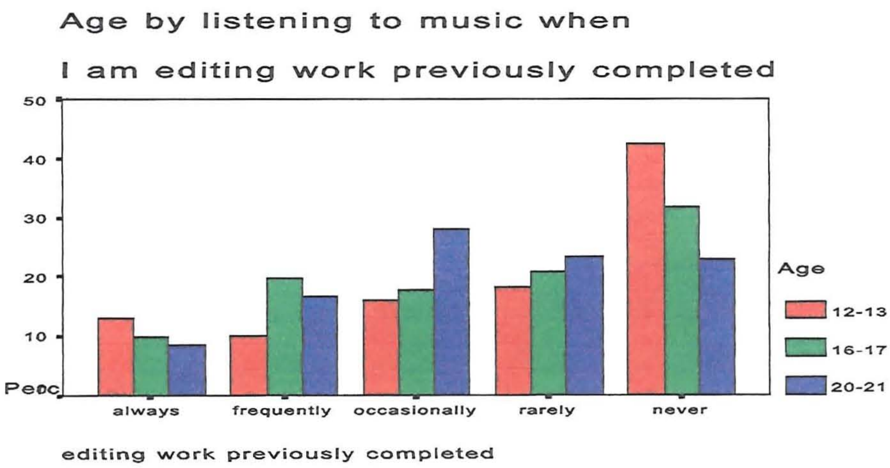


Figure 96



5.2.2 Listening to music while doing course work, developing ideas, solving problems, learning a foreign language, thinking, and studying my favourite/least favourite subject

In contrast to the responses outlined earlier there were significant age differences in the extent to which music was listened to while course work was being undertaken. The mean response for the university students was 3.27 (SD = 1.29). This was very similar to that for the advanced secondary students (mean = 3.29, SD = 1.49). These were significantly different ($F = 6.4$, $df = 2{,}592$, $p = .002$) to the mean for the secondary students which was 3.63 (SD = 1.38).

There were also statistically different means for listening to music while solving problems ($F = 6.4$, $df = 2{,}595$, $p = .002$). The university and secondary students reported identical means of 3.61 while the advanced secondary students had a mean of 3.29.

There were no significant age differences in listening to music while developing new ideas ($F = 4.2$, $df = 2{,}598$, $p = .016$), thinking ($F = 11.4$, $df = 2{,}599$, $p = .0001$), and learning a foreign language ($F=3.7$, $df=2{,}595$, $p=.024$) but also, for studying the most or least favourite subject . Figures 97 to 103 set out the distributions.

Figure 97

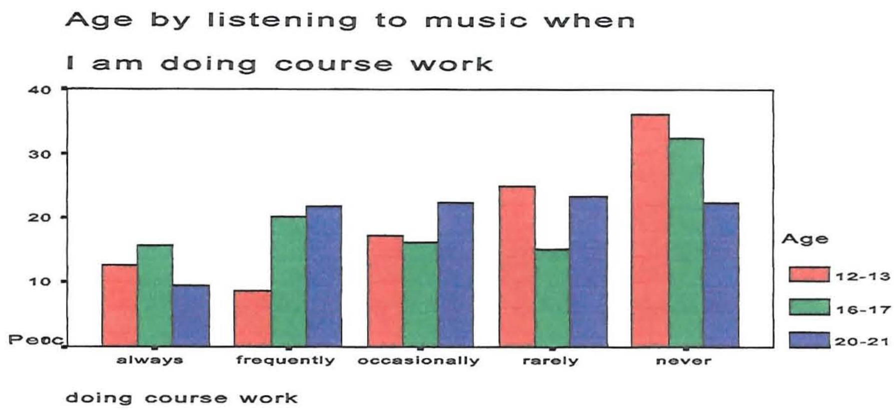


Figure 98

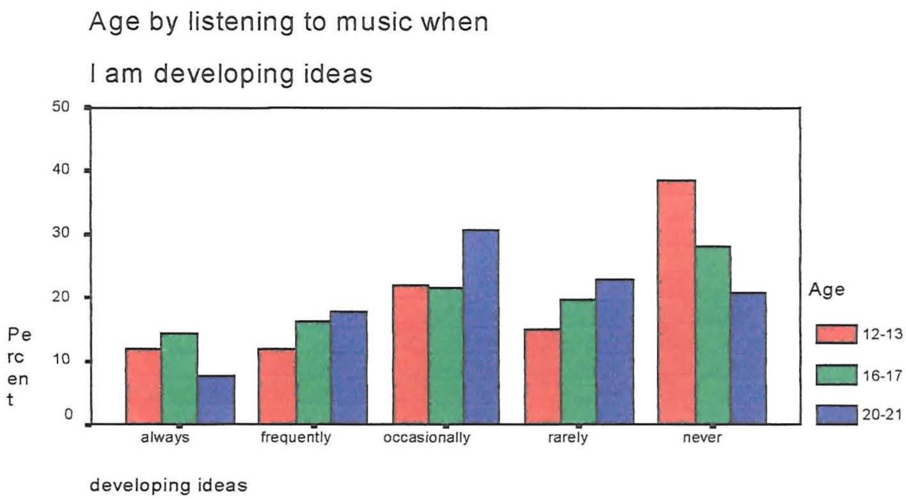


Figure 99

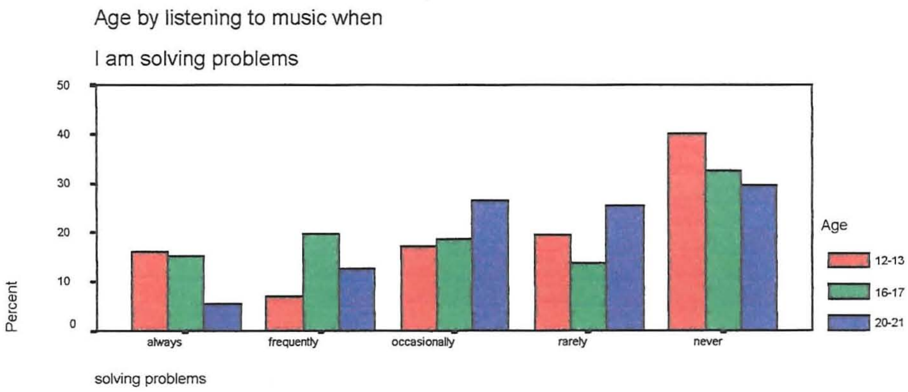


Figure 100

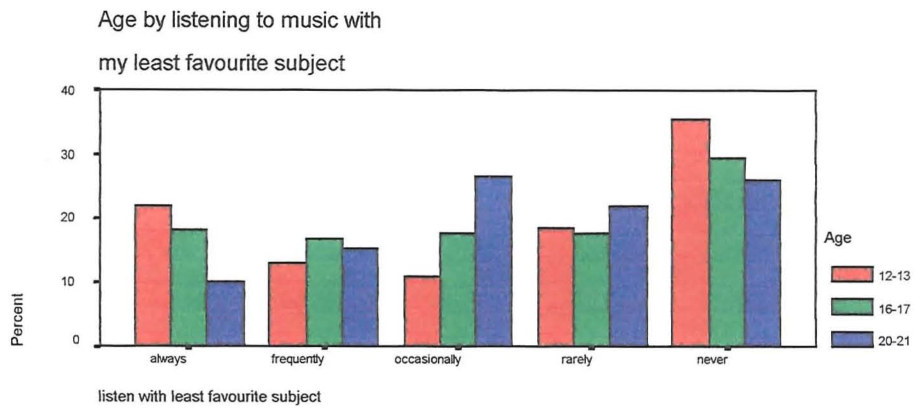


Figure 101

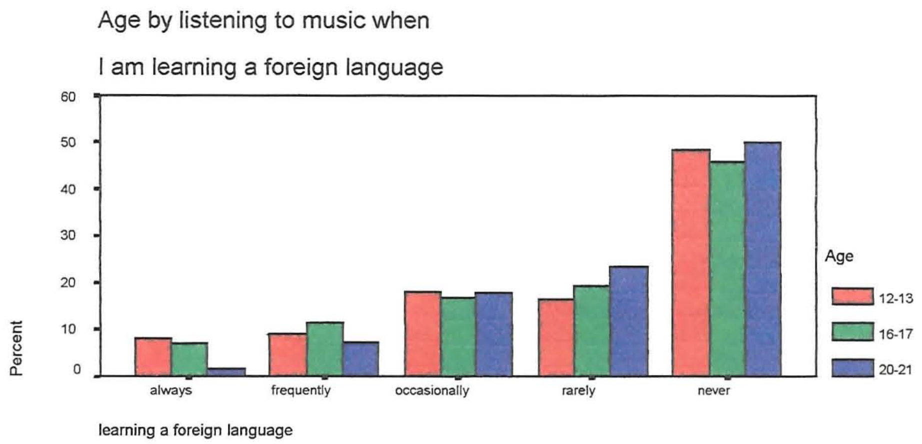


Figure 102

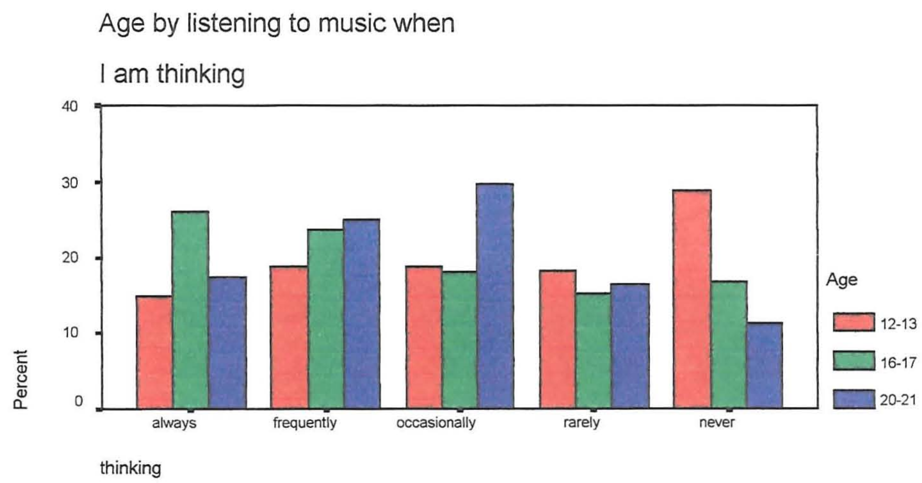
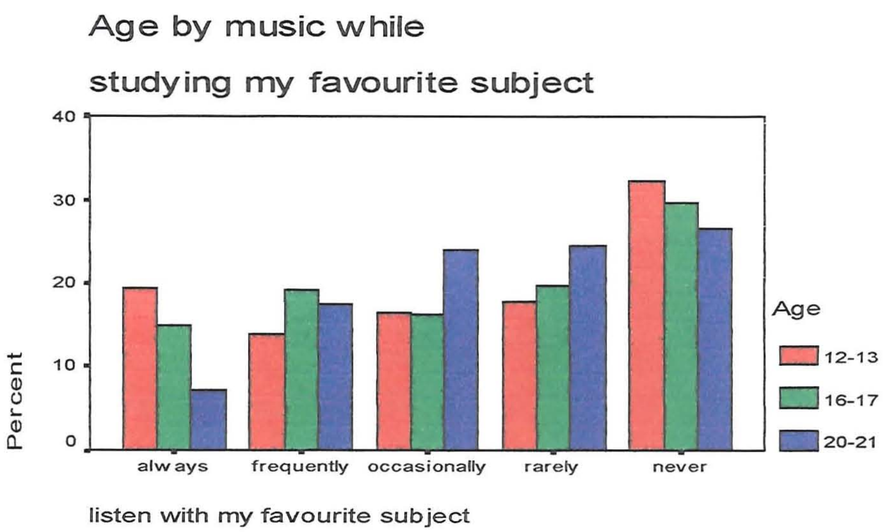


Figure 103



5.2.3 Summary

QUESTION	**12-13 secondary school students**		**16-17 advanced secondary school students**		**20-21 university students**		**MEAN overall**	**N**	**F**	**SIG**
Listening to music while:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
Studying	**3.19**	1.48	3.06	1.44	*3.02*	1.23	3.09	598	1.214	.298
revising for exams	**4.04**	1.32	3.67	1.47	*3.45*	1.29	3.72	598	9.478	.0001
Writing	**3.31**	1.47	*3.00*	1.42	3.06	1.25	3.12	600	4.301	.014
Memorizing texts	**4.18**	1.22	4.08	1.30	*4.03*	1.07	4.10	600	1.528	.218
Reading	**3.63**	1.35	*3.47*	1.39	3.54	1.21	3.54	597	.518	.596
doing course work	**3.63**	1.38	3.29	1.49	*3.27*	1.29	3.39	595	6.375	.002
editing work previously completed	**3.67**	1.44	3.45	1.37	*3.35*	1.25	3.49	596	3.251	.040
Solving problems	**3.61**	1.47	*3.29*	1.47	**3.61**	1.20	3.50	598	6.375	.002
Developing ideas	**3.56**	1.41	*3.31*	1.40	3.32	1.21	3.40	598	4.182	.016
Thinking	**3.27**	1.44	*2.73*	1.43	2.79	1.24	2.93	599	11.487	.0001
Studying my favourite subject	*3.30*	1.52	*3.30*	1.45	**3.46**	1.25	3.35	598	2.142	.119
Studying my least favourite subject	3.33	1.59	*3.24*	1.49	**3.38**	1.30	3.31	599	1.843	.159
learning a foreign language	3.89	1.32	*3.86*	1.30	**4.13**	1.05	3.95	595	3.757	.024

TABLE 10 : Age by listening to music while studying
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

Table 10 summarises the means for each age group, regarding their responses to questions about listening to music while studying and the details of the multivariate analysis of variance. There were some significant differences between the age groups. Those observed are for doing course work, revising for exams, solving problems, writing, editing work previously completed, developing ideas, thinking and learning a foreign language. In Chapter 4 a repeated measures analysis of variance showed significant differences between the extent to which music was listened to for different kinds of studying. The significant age related differences have been outlined above. There were significant interactions between age and type of studying in relation to the different kinds of studying (F=39.888, df=2, p=.035).

5.3 Perceived effects of listening to background music of different ages groups

Students from each age group were asked to report the perceived effects of listening to music on their studying. There were no statistical significant differences between secondary, advanced secondary and university students, in relation to their perceptions of whether music kept them company, alleviated boredom, interfered because they 'sang along' or interfered because it developed a too high level of arousal.

There were significant differences in relation to the extent to which music was seen to interfere with concentration. The university (mean = 2.89,SD = 1.19) and advanced secondary students (mean 3.38, SD = 1.26) believed that music interfered with their concentration more than their younger counterparts (mean = 3.55, SD = 1.46). These differences were statistically significant (F = 13. 96, df = 2,594, p = .00001). These differences may reflect the type of music being listened to or increasing metacognitive awareness with age. Furthermore, there were significant differences for the belief that music helped them concentrate (F=3.4, df=2,597, p=.031), helped them learn faster (F=4.7, df=2,596, p=.009) and that music interfered so they can't concentrate (F=14.1, df=2,597, p=.0001).

Table11 gives an overview of the means and standard deviations for the findings reported in this section. Figures 104 and 105 illustrate the distribution of responses. Repeated measures analysis of variance showed that there were no statistically significant interactions between the different perceived effects of listening to background music while studying and age.

Figure 104

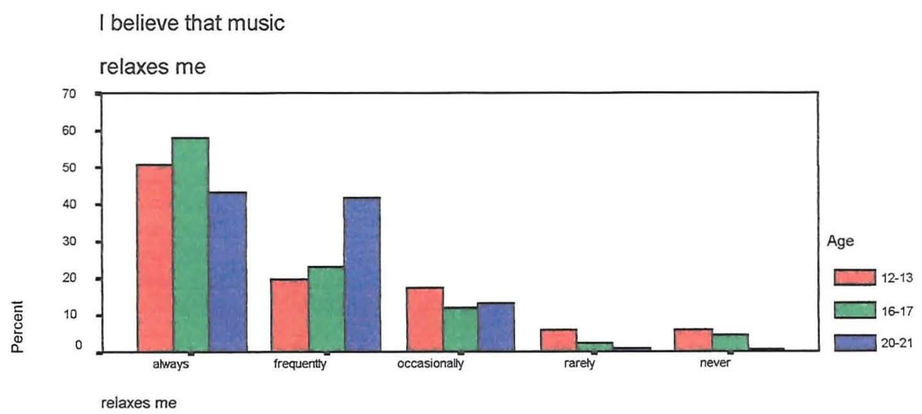
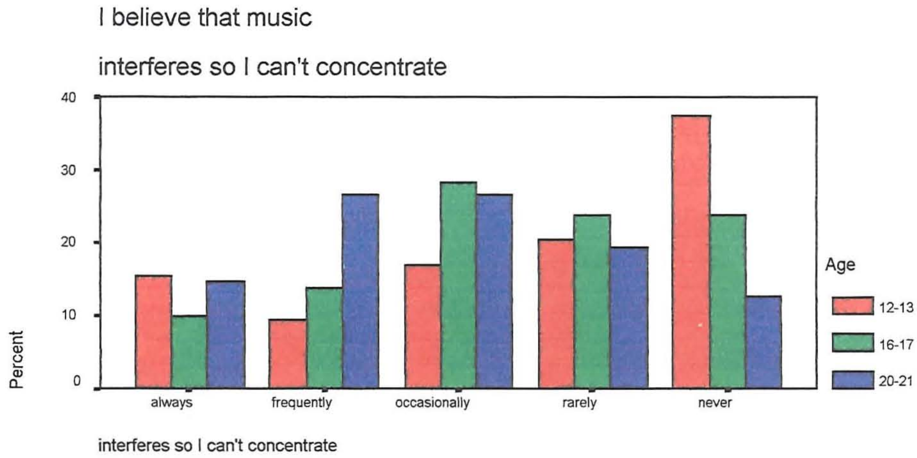


Figure 105



5.3.1 Summary

QUESTION	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students		MEAN overall	N	F	SIG
I believe that music:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
helps concentrate	3.03	1.47	*3.00*	1.34	**3.26**	1.18	3.10	597	3.486	.031
keeps company	**2.34**	1.30	2.21	1.33	*2.13*	1.01	2.23	596	2.685	.071
alleviates boredom	**2.07**	1.27	*1.91*	1.09	1.95	.99	1.98	598	1.383	.252
relaxes me	**1.97**	1.21	*1.72*	1.06	1.73	.77	1.81	599	2.183	.114
helps me learn faster	3.52	1.42	*3.45*	1.28	**3.67**	1.19	3.54	596	4.721	.009
interferes so I can't concentrate	**3.55**	1.46	3.38	1.26	*2.89*	1.25	3.27	597	14.152	.0001
interferes because I sing along	**3.34**	1.51	3.15	1.48	*3.09*	1.28	3.19	597	2.874	.057
interferes because it makes me too aroused	*3.99*	1.31	**4.04**	1.23	4.00	1.09	4.01	591	.428	.652

TABLE 11 :Age by perceived effects of listening to background music
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

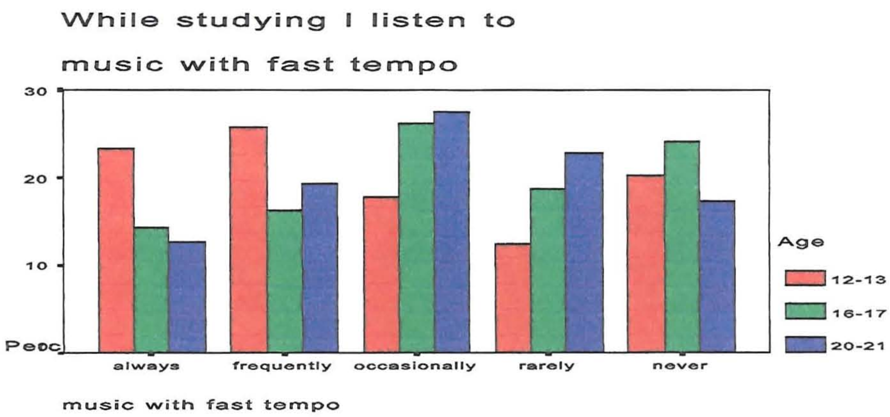
5.4 What kind of music are students listening to while studying

This section examines the different kinds of music that students report listening to while they were studying. There are two subsections the first relating to the characteristics of the music and the second to the genre of the music.

5.4.1 The characteristics of the music

As far as the characteristics of the music listened to while studying were concerned four of them were statistically significant among the three age groups. First was whether the students listened to music with a fast tempo. The most negative response came from the advanced secondary students (mean = 3.22, SD = 1.36). The most positive response came from the youngest students (mean 2.81, SD = 1.45). These differences were statistically significant (F = 5.14, df = 2,596, p = .006). Figure 106 illustrates the distribution.

Figure 106



Furthermore, there were significant differences in relation to listening to my favourite music (F=5.8, df=2,587, p=.003), listening to songs that I know (F=8, df=2,595, p=.0001), songs (F=8.6, df=2,590, p=.0001) and listening to loud music (F=12.9, df=2,590, p=.0001).

5.4.2 Summary

QUESTION	**12-13 secondary school students**		**16-17 advanced secondary school students**		**20-21 university students**		**MEAN overall**	**N**	**F**	**SIG**
While studying I listen to:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
my favourite music	2.68	1.56	*2.60*	1.54	**2.76**	1.39	2.68	587	5.824	.003
songs that I know	*2.50*	1.50	2.61	1.48	**2.67**	1.31	2.59	595	8.000	.000
music with fast tempo	*2.81*	1.45	**3.22**	1.36	3.13	1.27	3.05	599	12.746	.0001
music with slow tempo	**3.29**	1.39	3.28	1.35	*3.19*	1.15	3.25	596	1.031	.358
songs	*2.57*	1.49	2.80	1.54	**2.88**	1.30	2.75	590	8.640	.0001
loud music	*3.25*	1.55	3.49	1.45	**3.60**	1.34	3.45	597	12.871	.0001
instrumental music	**4.09**	1.17	*3.85*	1.29	3.86	1.14	3.93	594	.038	.963
calming music	**3.59**	1.30	*3.51*	1.34	3.56	1.15	3.55	597	.176	.839
arousing music	*3.57*	1.39	**3.75**	1.28	3.64	1.19	3.65	596	2.091	.126

TABLE 12 : Age by the general kinds of music that students listen to while studying
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

In Chapter 4, repeated measures analysis of variance showed that the overall differences in means between the musical preferences were significant ($F=100.098$, $df=8$, $p<.05$). As described above (Table 12) there were no significant age differences in the characteristics of the music listened to while studying except for music with a fast tempo as described above. There were no significant interactions between age and music characteristics.

5.4.3 Listening to music of different genres while studying at different ages

There were no significant differences between the three age groups in the extent to which they listened to classical, rock, blues, country, soul, easy listening, folk/world music and reggae music while studying. Differences were found for pop music, dance, gospel, and jazz. The details of F value, df and p are set out in Table 13 and figures 107 to 111.

The group least likely to listen to pop music while studying were the advanced secondary students (mean 3.43, SD= 1.42). The least likely to listen to reggae (mean = 4.13, SD = .93), dance (mean = 3.65, SD = 1.19) or gospel (mean 4.68, SD = .72) while studying were the university students. The least likely to listen to jazz were the advanced secondary students (mean = 4.3, SD = 1.14). Figures 107 to 111 illustrate the distributions of responses.

Figure 107

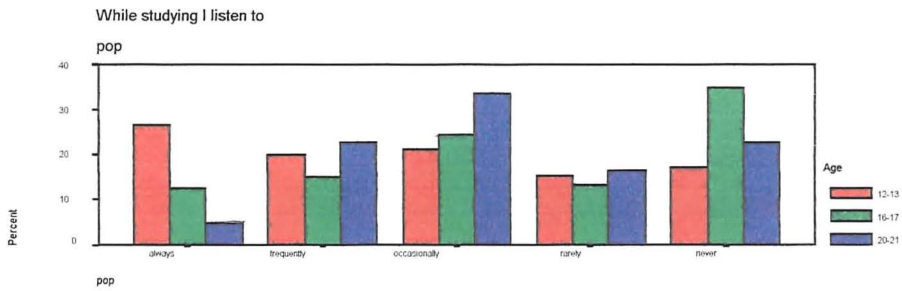


Figure 108

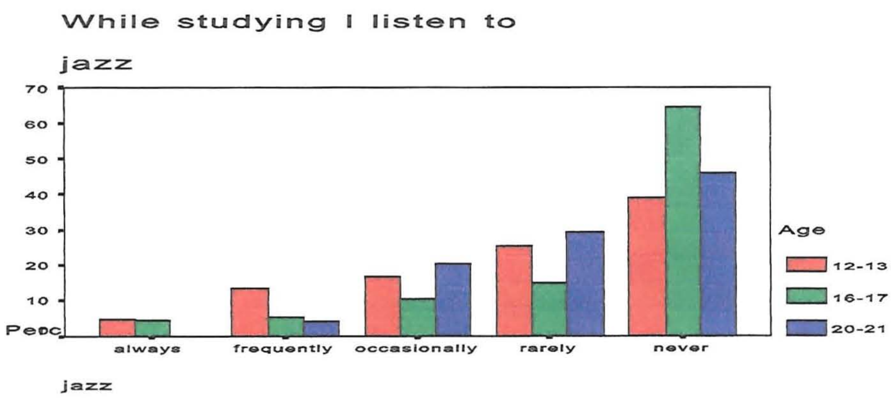


Figure 109

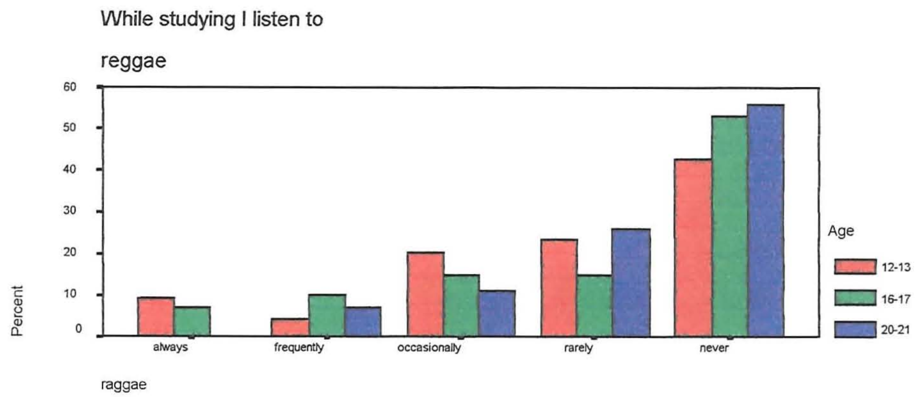


Figure 110

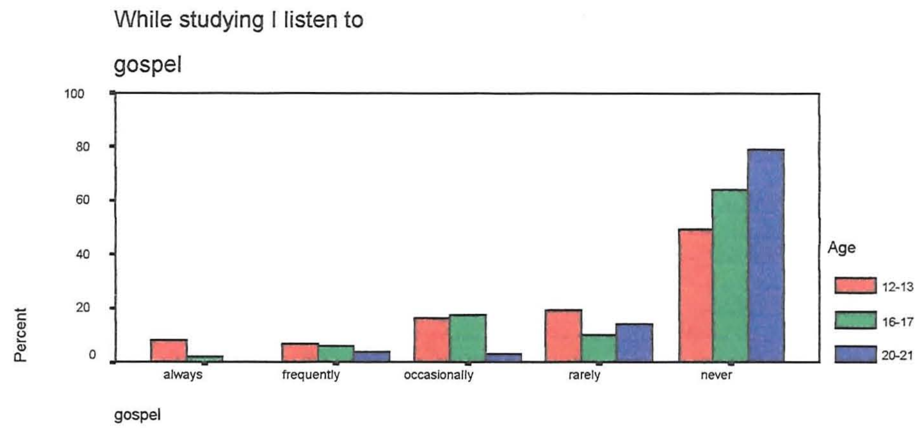
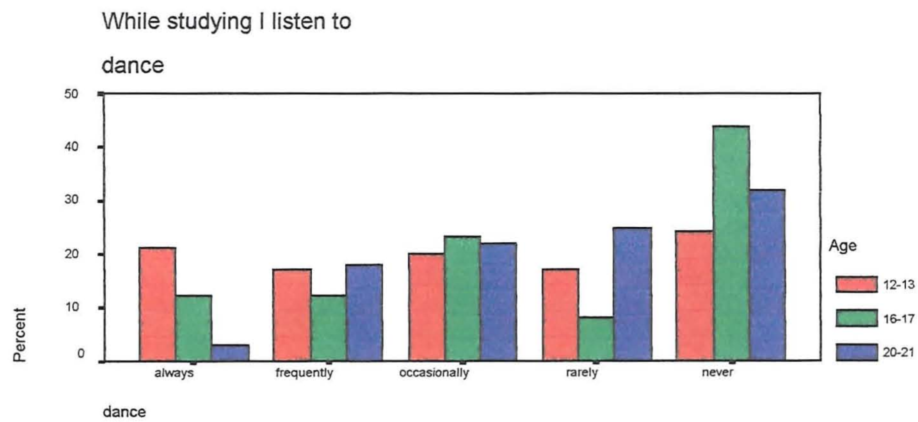


Figure 111



In comparison to chapter 4 , it is clear that jazz, reggae, and gospel music were affected not only by nationality but age as well, since in both cases the results were statistically significant.

5.4.4 Greece: Greek pop, Greek orchestral, Greek folk, Greek popular

The questions relating to listening to Greek music while studying were restricted to the Greek students. There were significant differences between different ages of Greek students and in their preferences for different kinds of Greek music.

The majority of the secondary school students reported listening to Greek pop music while they were studying (mean 3.04, SD = 1.4), the advanced secondary school students reported listening least (mean = 3.81, SD = 1.35), the university students responded in between these two extremes (mean= 3.2, SD = 1.38). The differences between the secondary school students and the other two groups were statistically significant (F = 4.58, df = 2,147 p = .012). Figure 112 illustrates the distribution of responses.

Figure 112

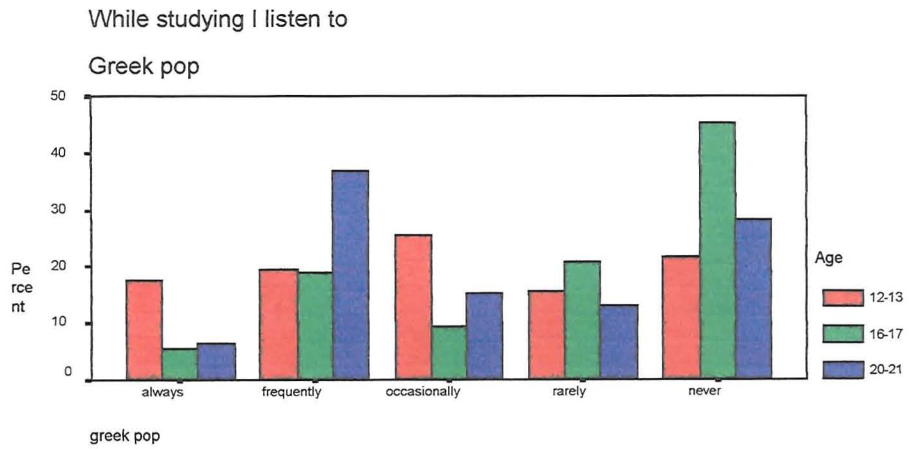
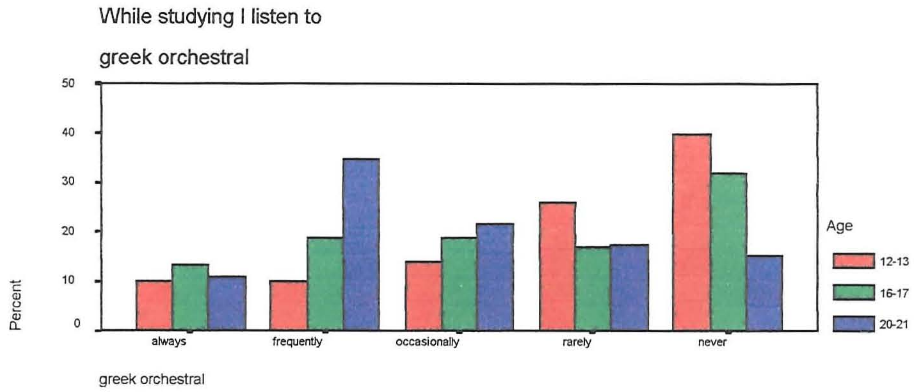
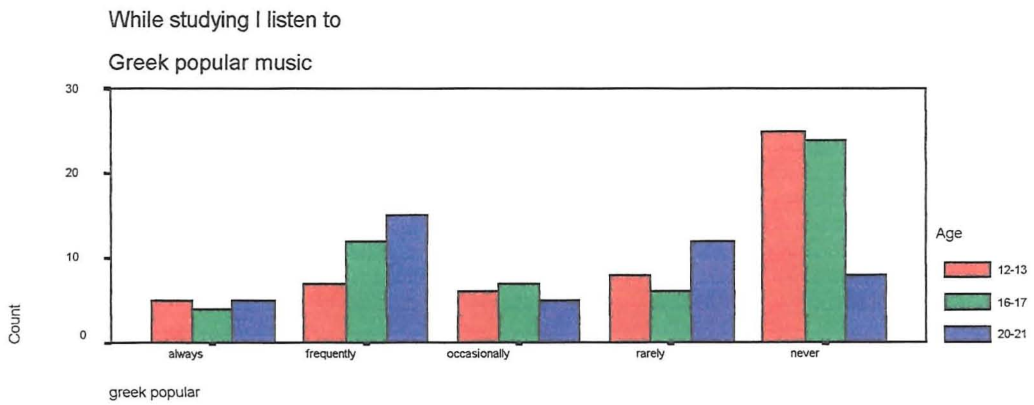


Figure 113



The responses to listening to Greek popular music were very similar (see Table 13). Listening to Greek popular music while studying was reported by university students (mean = 3.07, SD = 1.34) more than secondary (mean = 3.8, SD = 1.43) and advanced secondary students (mean = 3.64, SD = 1.44. The difference between the university students and the other two groups was statistically significant (F = 3.57, df = 2,146, p = .031).

Figure 114



The university students (mean = 4, SD = 1.07) reported listening more to Greek folk music than the secondary (mean = 4.08, SD = 1.14) and the advanced secondary (mean = 4.53, SD = .8) students. These differences were statistically significant ($F = 4.04$, $df = 2{,}146$, $p = .02$).

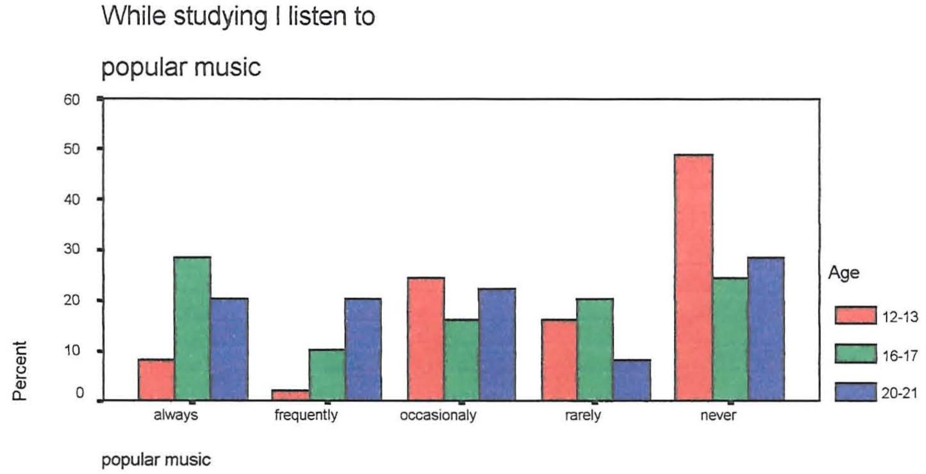
To summarize, for the Greek students, age seemed to influence their decision to listen to particular types of Greek music. The university students were more diverse in their selection of music to listen to while studying, whereas the youngest age group preferred 'pop' music. The pattern is more complex for the 17 to 18 year olds.

5.4.5 Japan: popular music, enka, new music, folk songs, kayoh kyoku, commercial songs, TV themes

The Japanese students in addition to the general music categories had specific types of Japanese music to respond to: popular music, enka, new music, folk songs, kayoh kyoku, commercial songs and TV themes. There were no significant age differences in relation to the decision to listen to these different kinds of music while studying except for popular Japanese music.

Popular Japanese music was the preferred music of the advanced secondary school students (mean = 3.02, SD = 1.57). The university students responses were very similar (mean = 3.04, SD = 1.51) while those of the secondary school students were less favourable towards this type of music (mean = 3.95, SD = 1.25). The difference between the secondary school students and the other two age groups was statistically significant ($F = 6.56$, $df = 2{,}147$, $p = .002$). Figure 115 illustrates the distribution of responses.

Figure 115



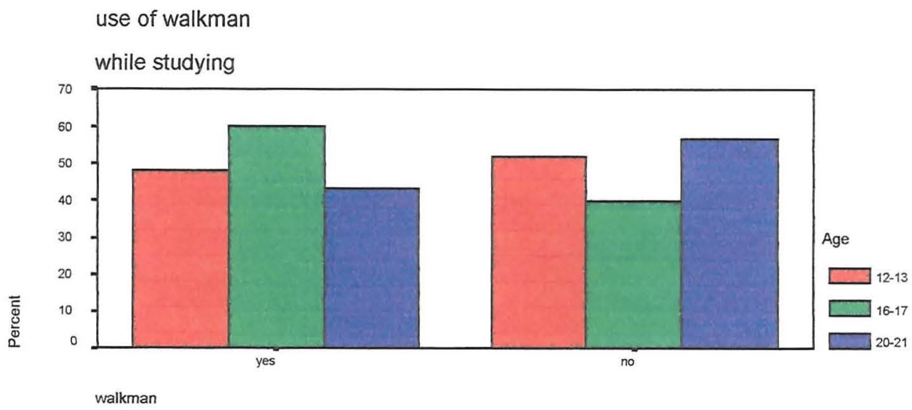
5.4.6 Summary

Students were asked if they listened to radio, or recorded music while studying. There were no statistically significant age differences for recorded music but there were for listening to the radio (F=4.6, df=2,594, p=.011).

There were statistically significant differences in the use of walkman at different ages (F=5.814, df=2,579, p=.003). Advanced secondary school students (mean=1.40, SD=.49) reported using the walkman more while they were studying than the secondary school students (mean=1.52, SD=.50) or the university students (mean=1.57, SD=.50).

The following table gives the details for all the questions for this section.

Figure 116



QUESTION	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students		MEAN overall	N	F	SIG
While studying I listen to:	**MEAN**	**SD**	**MEAN**	**SD**	**MEAN**	**SD**				
Classical	*4.15*	1.18	**4.26**	1.13	4.16	1.11	4.19	596	.920	.400
Rock	*3.31*	1.45	**3.49**	1.51	3.35	1.30	3.39	595	2.475	.086
Blues	4.09	1.19	**4.20**	1.16	*3.92*	1.08	4.07	450	2.304	.102
Country	**4.30**	1.12	*4.15*	1.32	4.17	1.11	4.21	448	1.698	.185
easy listening	3.77	1.24	**3.94**	1.29	*3.18*	1.06	3.84	297	.366	.694
folk/world music	*4.35*	1.09	4.44	1.06	**4.51**	.83	4.43	296	.189	.828
Reggae	*3.87*	1.27	3.97	1.31	**4.13**	.93	4.05	298	2.412	.092
Pop	*2.77*	1.44	**3.43**	1.42	3.29	1.19	3.16	449	7.748	.001
Soul	**3.80**	1.32	*3.64*	1.50	3.71	1.24	3.72	448	.591	.555
Dance	*3.06*	1.48	3.59	1.46	**3.65**	1.19	3.43	297	6.028	.003
Gospel	*3.95*	1.30	4.28	1.09	**4.68**	.72	4.30	296	8.288	.0001
Jazz	*3.81*	1.23	**4.30**	1.14	4.17	.90	4.09	446	5.747	.004
Popular music (JP)	**3.95**	1.25	*3.02*	1.57	3.04	1.51	3.34	147	6.656	.002
Enka (JP)	*4.57*	.957	**4.85**	.412	4.79	.576	4.73	146	2.285	.105
New music (JP)	3.34	1.70	**3.55**	1.45	*3.02*	1.49	3.30	148	1.440	.240
Folk songs (JP)	**4.64**	.776	4.42	1.00	*4.38*	.885	4.48	148	1.146	.321
Kayoh kyoku (JP)	**3.88**	1.45	3.65	1.53	3.25	1.53	3.59	147	2.186	.116
Commercial songs (JP)	*3.71*	1.17	3.87	1.17	**4.00**	1.17	3.86	145	.730	.484
TV music themes (JP)	*3.12*	1.40	**3.63**	1.25	3.40	1.28	3.37	145	1.806	.168
Greek pop	*3.04*	1.40	**3.81**	1.35	3.20	1.38	3.36	150	4.582	.012
Greek orchestral	**3.76**	1.35	3.36	1.44	*2.91*	1.26	3.36	149	4.665	.011
Greek popular	**3.80**	1.43	3.64	1.44	*3.07*	1.34	3.52	149	3.571	.031
Greek folk	4.08	1.14	**4.53**	.80	*4.00*	1.07	4.21	149	4.040	.020

QUESTION	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students					
Radio	**3.42**	1.48	*3.08*	1.42	3.22	1.37	3.24	594	4.592	.011
Recorded music	**3.27**	1.44	*2.98*	1.47	3.22	1.28	3.16	589	1.727	.179

TABLE 13: Age by the different kinds of music that students listen to while studying
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

The table above, summarises the students' responses for listening to different kinds of music while studying, as well as the overall mean, the number of responses in each question, the F value, and the significance.

Overall, there were relatively few age differences in the kinds of music selected to be listened to while studying. There were some specific differences for the Greek and Japanese populations but for the population as a whole it was the variety of music, which was listened to, which seemed to increase with age. This supports earlier research (LeBlanc and McCrary, 1983)

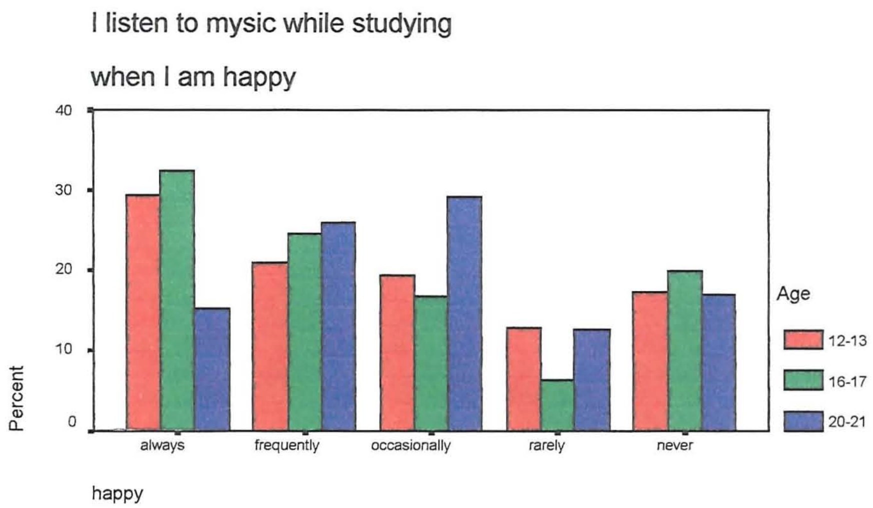
5.5 Influences on listening to music

5.5.1 Mood and choice of music

I listen to music while studying when I am happy, bored, like/don't like the subject, am disturbed by other noises around me.

There were no significant age differences in the extent to which students reported listening to music while studying in relation to a range of mood related factors except for being happy. Figure 117 illustrates the distribution of responses.

Figure 117



The advanced secondary school students (mean=2.57, SD=1.49) reported listening to music when they are happy more than the younger students(mean=2.68), SD=1.46) and the university students (mean=2.90, SD=1.29. This difference was statistically significant (F = 3.8, df = 2,581, p = .023).

Students' decisions to listen to music while studying, when they were bored, disturbed by other noises, or whether they liked or disliked the subject they were studying did not appear to be affected by their age.

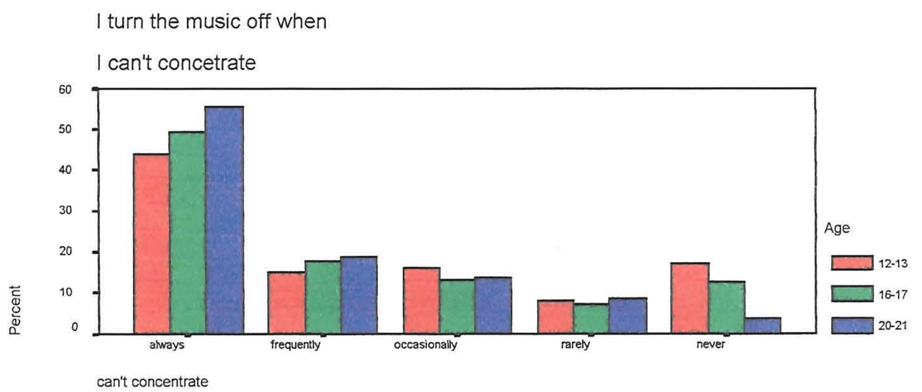
5.5.2 Metacognitive factors

A series of questions attempted to address the extent to which the students were aware of the effects of the music and subsequently took action to alleviate any negative effects.

5.5.3 What makes students turn the music on and off

The following section explores what encouraged the students to turn off the music: when they could not concentrate, when it made them nervous, when they were unable to learn, or when someone suggested they should.

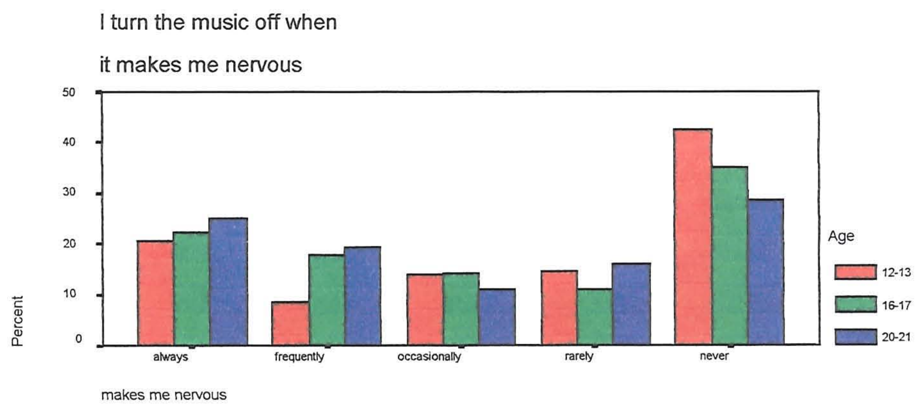
Figure 118



To the question concerning turning the music off if they were unable to concentrate, the majority of all students responded 'always'. However, there were age related differences. The university students (mean 1.86, SD = 1.16) showed the most positive response, followed by the advanced secondary students (mean = 2.16, SD = 1.42) and lastly the secondary students (mean = 3.29, SD = 1.52). These differences were statistically significant (F = 6.5, df = 2,585, p = .002). The findings show a clear trend towards greater responsibility towards responding to the negative effects of the music with age. Figure 118 illustrates the distribution of responses.

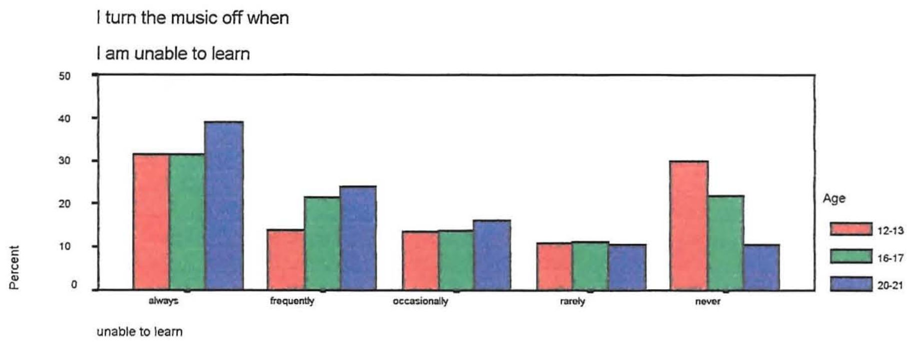
A similar pattern emerged in relation to the action the students would take if they felt that the music was making them feel aroused or nervous. The university students were most likely to turn it off (mean = 3.04, SD = 1.58), followed by the advanced secondary students (mean = 3.18, SD = 1.6). The secondary students were the least likely to respond in this way (mean = 3.5, SD = 1.59). These differences were statistically significant (F = 4.0, df= 2,581, p = .018).

Figure 119



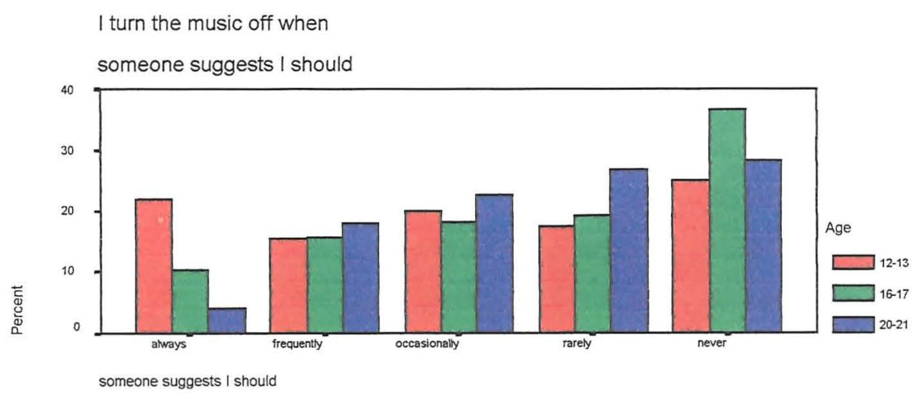
The same trend was observed in relation to turning the music off if unable to learn. The university students were the most likely to respond positively (mean = 2.29. SD = 1.35), followed by the advanced secondary students (mean = 2.7, SD = 1.55) and the secondary students (mean = 2.94, SD = 1.65). The differences between the university and other students were statistically significant (F = 11.5, df = 2,585, p = .0001).

Figure 120



In contrast to the findings reported above, it was the younger students who were more likely to turn off the music if someone told them that they should (mean = 3.08, SD = 1.49). The university students were the least likely to do so (mean = 3.57, SD = 1.19) although there was little difference between their response and that of the advanced students (mean = 3.56, SD = 1.39). The differences between the older and younger students were significant (F = 7.2, df = 2,584, p = .001). Figure 121 illustrates the distribution of responses.

Figure 121

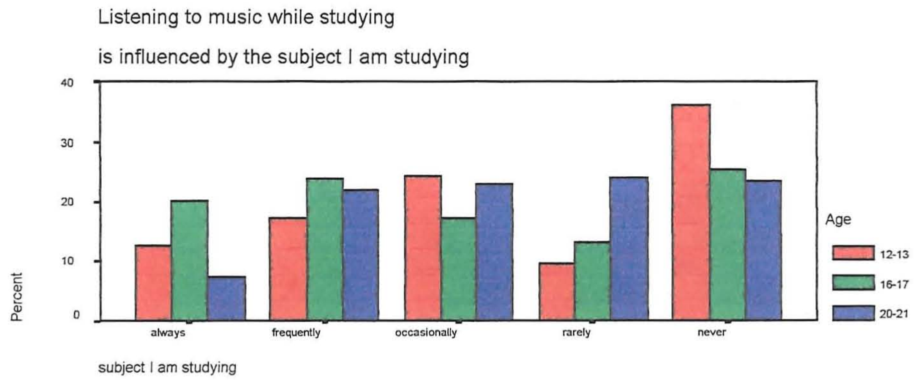


5.5.4 What factors influence students' decisions to listen to music while studying

The next group of questions addressed issues relating to the factors which influenced choosing to listen to music or not when studying. There were no significant differences in relation to age regarding the type of music or the mood of the student in influencing the decision to listen to music or not while studying.

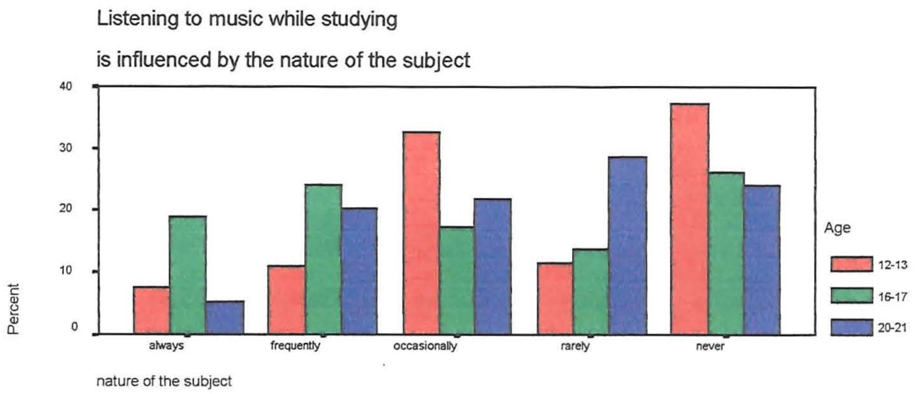
The subject that students were studying did appear to influence their decision to have background music playing and there were age-related differences in this. Advanced secondary school students were most influenced by the subject they were studying (mean = 3.04, SD = 1.49) secondary students the least (mean = 3.39, SD = 1.44). The differences between these extremes were statistically significant (F = 4.2, df = 2,584, p = .016).

Figure122



The same pattern occurred in relation to the nature of the subject being studied. Advanced secondary school students (mean 3.04, SD = 1.48) were the most influenced followed by the university students (mean = 3.46, SD = 1.21). The least influenced were the secondary students (mean = 3.6, SD = 1.29). These differences were statistically significant ($F = 8.5$, $df = 2,584$, $p = .0001$).

Figure 123



5.5.5 Summary

Table 14 gives an overview of the data reported in this section. It demonstrates that in taking decisions about having background music playing while studying there were age related differences. The older students were more prepared to take action to reduce any negative effects of the music than the younger students. Younger students tended to turn on music while studying, when they were disturbed by other noises around them, and they turned the music off if someone suggested they should. Advanced secondary school students were more influenced than the others about deciding to listen to music depending on the subject they were studying, and the nature of the subject. University students, turned the music off, more than the school students when they were unable to concentrate, when it made them nervous, and when they were unable to learn.

QUESTION	12-13 secondary school students		16-17 advanced secondary school students		20-21 university students		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD	MEAN	SD				
I listen to music when I am happy	2.68	1.46	*2.57*	1.49	**2.90**	1.29	2.71	581	3.811	.023
I listen to music when I am bored	*2.56*	1.50	**2.83**	1.50	2.76	1.27	2.71	589	.821	.441
I listen to music when I like the subject	*3.16*	1.50	3.19	1.49	**3.29**	1.23	3.21	588	.281	.755
I listen to music when I dislike the subject	**3.30**	1.54	*3.14*	1.52	3.29	1.30	3.25	583	.711	.492
I turn the music off when I am disturbed by other noises	*2.89*	1.57	**3.32**	1.51	3.15	1.34	3.12	584	2.235	.108
I turn the music off when I am can't concentrate	**3.29**	1.52	2.16	1.42	*1.86*	1.16	2.14	583	6.491	.002
I turn the music off when it makes me nervous	**3.50**	1.59	3.18	1.60	*3.04*	1.58	3.24	584	4.025	.018
I turn the music off when I am unable to learn	**2.94**	1.65	2.70	1.55	*2.29*	1.35	2.65	588	11.545	.0001
I turn the music off when I someone suggests I should	*3.08*	1.49	3.56	1.39	**3.57**	1.19	3.40	587	7.227	.001
Listening to music depends on the type of music	**2.64**	1.42	*2.50*	1.45	2.56	1.31	2.57	569	.515	.598
Listening to music depends on the subject I am studying	**3.39**	1.44	*2.99*	1.49	3.35	1.26	3.24	585	4.168	.016
Listening to music depends on the nature of the subject	**3.60**	1.29	*3.04*	1.48	3.46	1.21	3.37	587	8.542	.0001
Listening to music depends on the mood I am in	**2.24**	1.41	*2.13*	1.35	2.16	1.28	2.18	590	2.267	.105

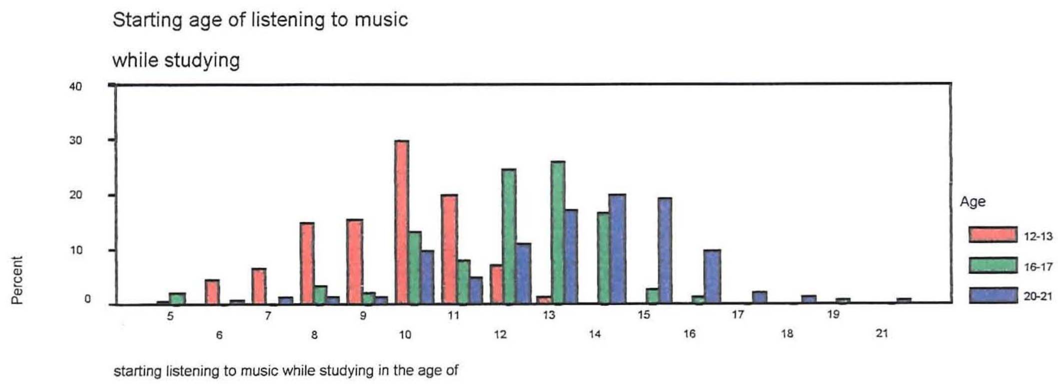
	12-13 secondary school students	16-17 advanced secondary school students	20-21 university students				

TABLE 14 : Age by the decision of listening to music while studying
The highest responses are in **bold**, and the lowest are in *italics*
The highest responses mean the least agreement

5.6 Age of starting listening to music

Finally the students were asked when they started listening to music while studying. The mean for secondary school students was 9.25 (SD=1.61) for advanced secondary school students 12.09, (SD = 2.00) and for university students 13.33 (SD = 2.33). These differences were statistically significant (F =34.406, df = 2,449, p = .0001).

Figure 124



When students were asked whether their family approved of their listening to music while studying, there were no statistically significant differences between the different ages.

A chi-squared analysis revealed no significant age differences as to whether they studied alone or shared a study room with others who listened to music.

5. 7 Interactions between nationality and age

Two way analysis of variance was undertaken to explore if there were any interactions between age and nationality. Details of the analyses and the means for the cells are in the appendices. In general, listening to music while undertaking a range of activities increases with age across all national groups. Analysis of the interactions demonstrated some exceptions to these trends. For instance, for the Americans listening to music in their freetime and when waking up decreased from ages 12-13, through 16-17 to 20-21 and they listened most when eating or taking a bath when they were 16-17. Listening in the evening increased with age for Japanese and UK students but for the Greek students it increased up to age 16-17 and then decreased at 20-21. For the American students the pattern was reversed. Most listening in the evening took place at 12-13 and decreased as the students got older. Listening while going to sleep was highest for all groups except the Japanese at age 16-17. For the Japanese, listening increased with age up to and including 20-21. Listening at home in the morning increased with age for the UK and Greek students but was at its highest for the Japanese and US students in the 16-17 age group. These age differences between nationalities in listening to music in everyday life may reflect different educational patterns and living situations at university and college.

There were three significant nationality-age interactions in relation to listening to music while undertaking specific types of studying, revising for examinations, reading and thinking. Overall, there were increases in the use of music with age while studying, the exceptions were the US students in relation to revising where the greatest use of music occurred at age 16-17; a decrease in the use of background music with age when reading for Japanese and American students; and an overall decrease in the use of music with age when thinking for the Americans with a low point at age 16-17 for the Japanese. This may reflect the differing studying requirements at each age in each educational system.

The perceived effects of music on aspects of studying and the ways in which it was used showed the most age-nationality interactions. Concentration was perceived to be aided by music the most at age 12-13 by the Japanese and US students but at 16-17 by the UK and Greek students, although playing music for the purpose of increasing concentration showed no systematic patterns across age and nationality. It increased with age for UK students, decreased for Greek students, was at its highest for Japanese students at 16-17 and the lowest for US students at 16-17. Music was perceived to provide company and alleviate boredom more for Japanese and UK students as they got older while in the Greek students they were highest at 16-17 and for the US students were highest at 12-13 and then decreased with age. Interference because of singing along increased with age for the Japanese and UK students while there was a dip for the US and Greek students at age 16-17. Similar variability was in evidence for listening to music depending on mood and when happy (see appendices for details).

The interactions for musical genre were not considered because of the different genres available within each nationality. However, the types in terms of familiarity and level of arousal were considered. Listening to arousing music increased with age except for the US students where there was an overall trend of reducing listening to arousing music as they got older. No consistent patterns emerged with regard to listening to favourite music or songs that I know.

5.8 Conclusions

The evidence described above suggests that age was an important factor that impacted on students' use of background music while studying. Age affected students' everyday music listening habits, their decisions about listening to music when studying and in some cases the kind of music that they listened to. It appeared not to affect beliefs about the effects of music on their studying but it did appear to have an impact on what they did if they believed that their studying was being affected in a negative way.

CHAPTER 6

FINDINGS ON GENDER

CHAPTER 6: FINDINGS ON GENDER

This chapter examines gender differences in music listening habits. The findings showed that gender was a factor but not an important one in determining listening to music while studying.

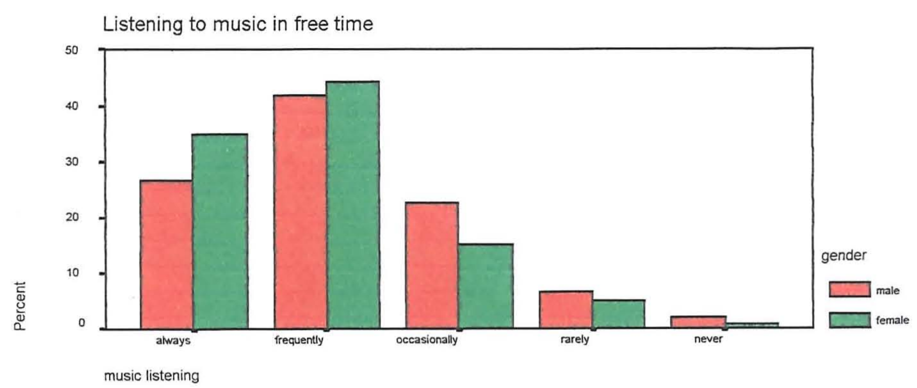
6.1 Music in everyday life

This section explores gender differences in relation to the listening habits of the students in everyday life.

6.1.1 Listening to music in free time

There were significant gender differences in listening to music in free time. The females (mean = 1.92, SD = .87) listened to music more than the males (mean 2.15, SD = .96). These differences are statistically significant (F = 5.4, df=1,598, p = .022). The distribution of scores is set out in Figure 125.

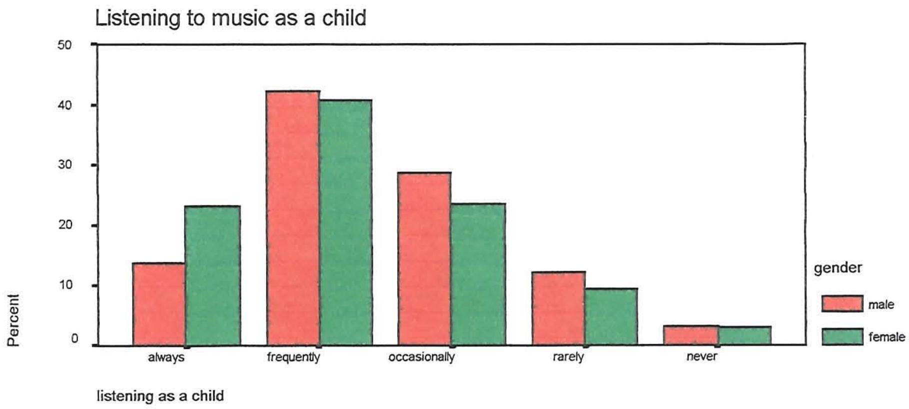
Figure 125



6.1.2 Listening to music as a child

Participants were asked to respond to the following statement regarding their listening 'As a child, in my home I listened to music'. The girls reported listening more (mean = 2.28, SD = 1.02) than the boys (mean = 2.48, SD = .98). This difference was statistically significant (F = 5.2, df=1,591, p = .023).

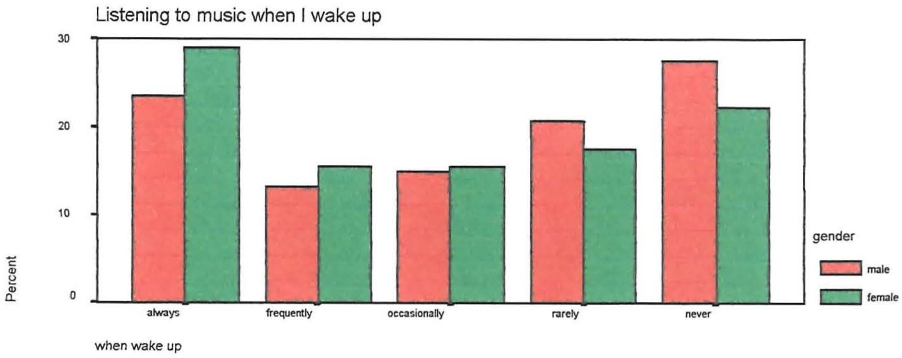
Figure 126



6.1.3 Listening to music when I wake up

The female respondents reported listening to music more often when they woke up than the males (females mean = 2.89, SD = 1.54; male mean = 3.16, SD = 1.54). This difference was statistically significant (F = 5.9, df=1,588, p = .016). Figure 127 gives the frequencies of responses.

Figure 127



6.1.4 Summary

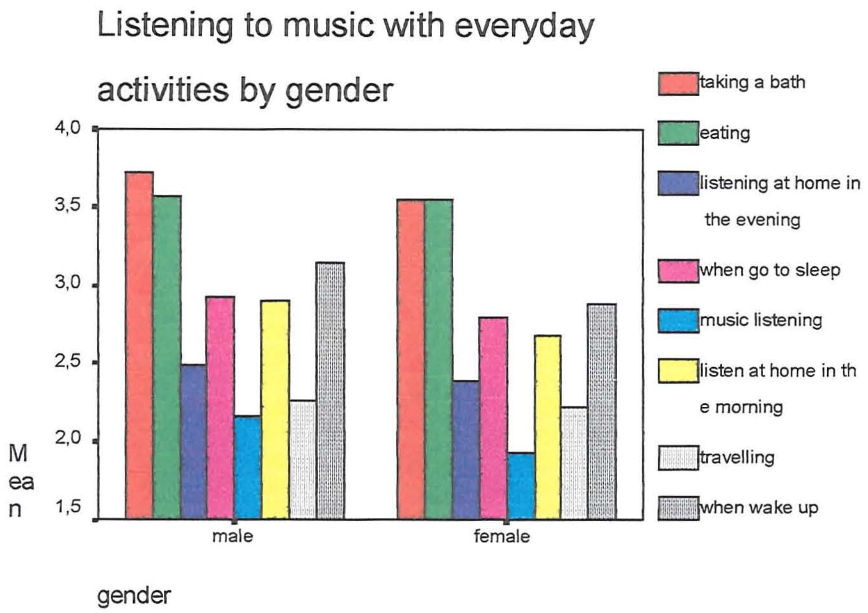
The other statistical significant differences were for listening to music when I am home in the morning (F=6.2, df=1,592, p=.014), and for travelling (F=4.8, df=1, 600, p=.034) where the girls listened to more music than the boys. There were no statistically significant gender differences in response to any of the other questions regarding listening in everyday life. Table 15 gives the means, SDs and details of the statistical tests.

QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD				
Music listening in free time	**2.15**	.96	*1.92*	.87	2.04	600	5.360	.022
Listening to music as a child	**2.48**	.98	*2.28*	1.02	2.38	593	5.241	.023
Listening to music when wake up	**3.16**	1.54	*2.89*	1.54	3.02	590	5.914	.016
Listening to music when go to sleep	**2.95**	1.40	*2.78*	1.34	2.87	597	.614	.434
Listening to music at home in the morning	**2.90**	1.39	*2.70*	1.37	2.80	592	6.168	.014
Listening to music at home in the evening	**2.48**	1.22	*2.38*	1.15	2.43	599	2.710	.101
Listening to music while I am eating	**3.57**	1.32	*3.55*	1.27	3.56	595	.292	.589
Listening to music when I am taking a bath	**3.70**	1.46	*3.53*	1.56	3.62	594	.670	.414
Listening to music when I am travelling	**2.26**	1.26	*2.20*	1.29	2.23	600	4.542	.034

TABLE 15 : Gender by music listening in every day life activities
The highest responses are with **bold**, the lowest are with *Italics*
The highest responses mean the least agreement

Figure 128 sets out the comparative means for each aspect of listening

Figure 128

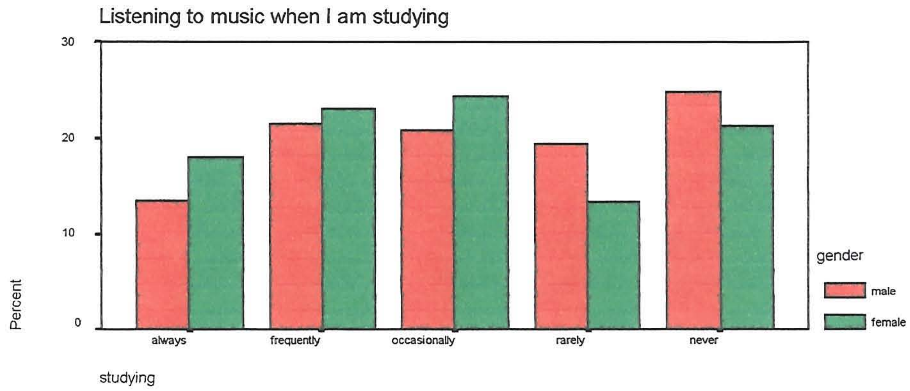


Repeated measures analysis of variance showed that the differences between the activities were statistically significant (F= 158.4, df=8, p =.05). There was a significant interaction between these differences and gender. (F=4.315, df=1, p=.35).

6.2 Music and studying

There were statistically significant differences (F = 5.1, df=1,597, p = .024) between responses regarding listening to music while reading between male and female, editing work previously completed (F=7.0, df=1,596, p=.009) and thinking (F=4.1, df=1,599, p=.043). The girls listened to music more than the boys while undertaking these activities.

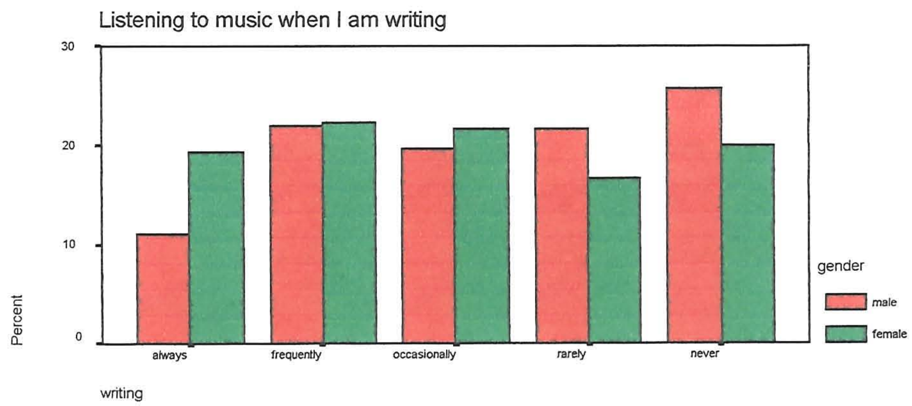
Figure 129



6.2.1 Listening to music while I am writing

Listening to background music while writing was reported more frequently by the girls (female mean = 2.96, SD = 1.4; male mean = 3.29, SD = 1.35). This difference was statistically significant (F = 6.5, df=1,598, p = .011). Figure 130 illustrates the distributions.

Figure 130



6.2.2 Summary

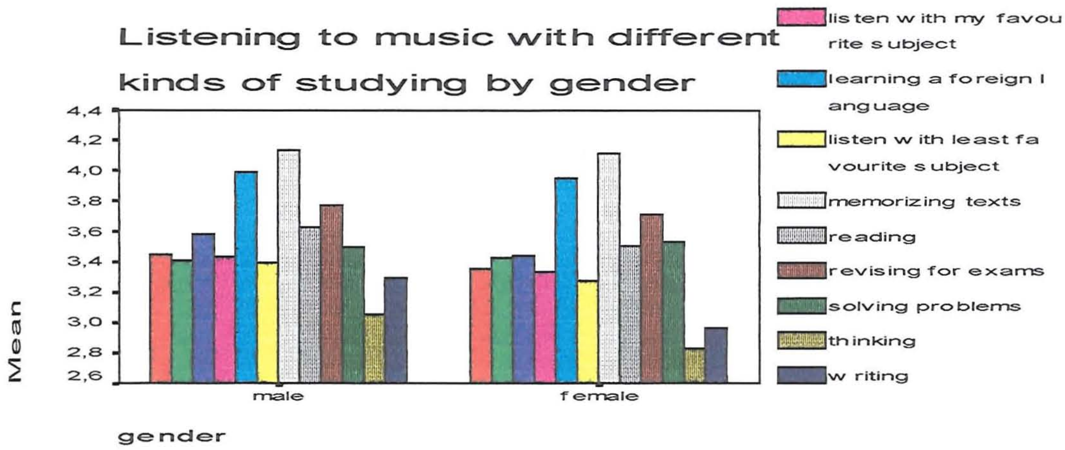
There were no gender differences for the remaining aspects of studying. Table 16 sets out the means, standard deviation and details of the statistical analysis.

QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
Listening to music while:	**MEAN**	**SD**	**MEAN**	**SD**				
Studying	**3.21**	1.38	*2.97*	1.39	3.09	598	3.285	.071
revising for exams	**3.75**	1.36	*3.69*	1.40	3.72	598	1.832	.177
Writing	**3.29**	1.35	*2.96*	1.40	3.12	600	6.532	.011
memorizing texts	**4.10**	1.19	*4.09*	1.22	4.10	600	1.346	.247
Reading	**3.60**	1.30	*3.49*	1.33	3.54	597	5.153	.024
doing course work	**3.46**	1.37	*3.33*	1.43	3.39	595	1.317	.252
editing work previously completed	**3.55**	1.35	*3.43*	1.37	3.49	596	7.030	.009
solving problems	*3.49*	1.42	**3.51**	1.36	3.50	598	.002	.960
developing ideas	*3.38*	1.33	**3.42**	1.37	3.40	598	.239	.625
Thinking	**3.03**	1.40	*2.83*	1.38	2.93	599	4.128	.043
listen with my favourite subject	**3.39**	1.39	*3.31*	1.43	3.35	598	.002	.962
listen with least favourite subject	**3.37**	1.46	*3.26*	1.47	3.31	599	2.957	.087
learning a foreign language	**3.97**	1.24	*3.94*	1.23	3.95	595	.560	.455

TABLE 16 : Gender by listening to music while studying
The highest responses are with **bold**, the lowest are with *Italics*
The highest responses mean the least agreement

Figure 131sets of the means of male and female for each type of studying. Overall, the girls reported listening to music more than boys for all types of studying except solving problems and developing ideas, although most of these differences were not statistically significant. A repeated measures analysis showed that the differences between the various aspects of studying were different (F=66.544, df= 11, p<.05). There was no significant interaction between these and gender.

Figure 131



6.3 Perceived effects of listening to background music while studying

In response to questions about the perceived effects of music on studying few gender differences were reported. The female respondents felt that music 'kept them company' more than the males and that music helped to alleviate boredom. Table 17 gives the details of all the means and standard deviations. Figures 132 and 133 show the distribution of scores for music "keeping me company" and "alleviating boredom".

Figure 132

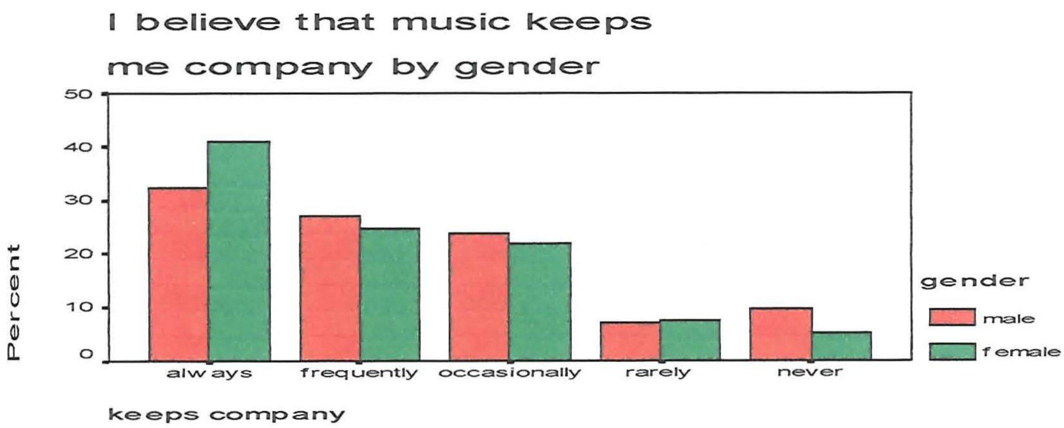
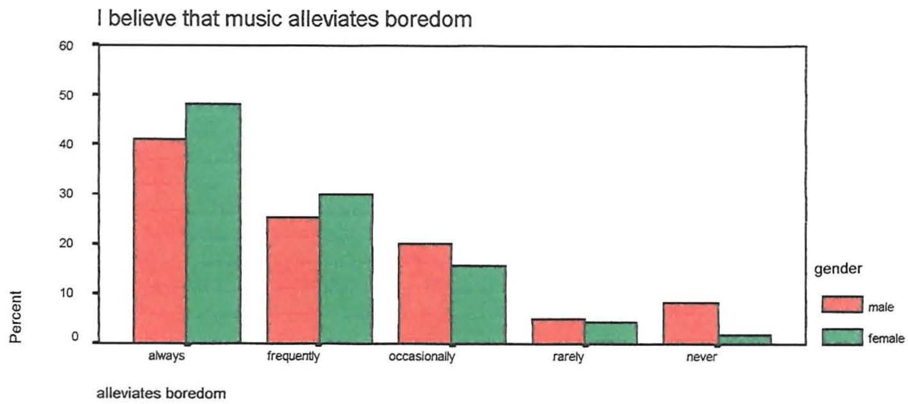


Figure 133



6.4 Summary

Boys and girls did not respond differently to most of the statements about their beliefs regarding the effects of background music on them and their studying. They gave similar responses about music relaxing them, helping them to learn faster, and for the possible negative effects, e.g. interfering with concentration because they sang along or became too aroused. Table 17 gives all the details.

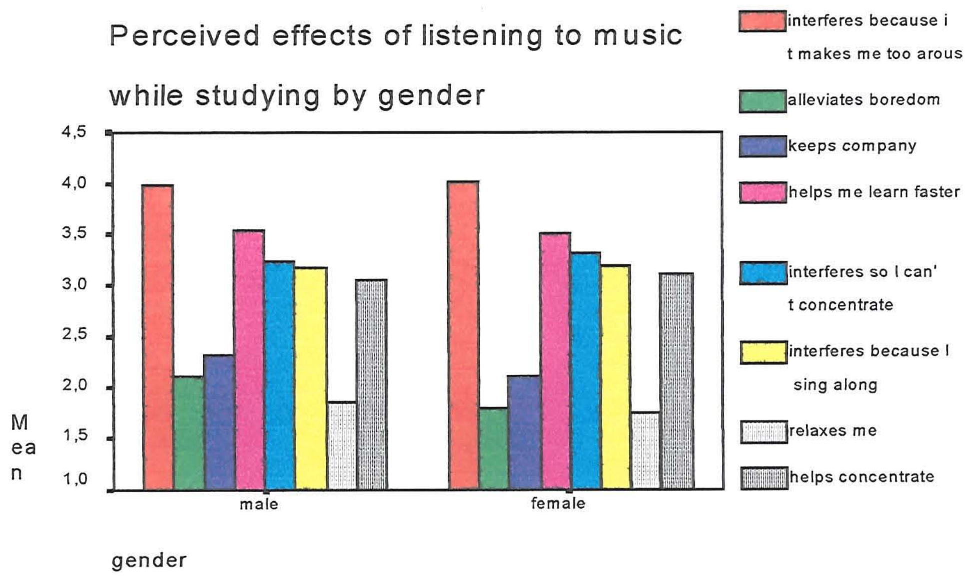
QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
I believe that music:	MEAN	SD	MEAN	SD				
helps concentrate	*3.08*	1.35	**3.11**	1.33	3.10	597	1.515	.220
keeps company	**2.34**	1.27	*2.11*	1.17	2.23	596	4.074	.045
alleviates boredom	**2.14**	1.25	*1.81*	.97	1.98	598	8.679	.004
relaxes me	**1.86**	1.09	*1.75*	.98	1.81	599	2.340	.128
helps me learn faster	**3.56**	1.30	*3.53*	1.31	3.54	596	.061	.806
interferes so I can't concentrate	*3.23*	1.38	**3.32**	1.33	3.27	597	.725	.395
interferes because I sing along	*3.18*	1.42	**3.21**	1.44	3.19	597	.824	.365
interferes because it makes me too aroused	*3.98*	1.24	**4.04**	1.19	4.01	591	1.578	.210

TABLE 17 : Gender by the perceived effects of listening to music while studying

QUESTION	MALE	FEMALE				
The highest responses are with **bold**, the lowest are with *Italics* The highest responses mean the least agreement						

Figure 134 sets out the mean differences for male and female on each of the questions. Repeated measures analysis of variance was calculated and showed that overall there was a statistically significant interaction between the different perceived effects of listening to background music while studying and gender (F=271.690, df=7, p=.0001).

Figure 134



6.5 Gender differences in kinds of music students listen to while studying

There was only one statistically significant gender differences reported in relation to the kind of music listened to while studying. This related to whether the music was perceived as loud. The females tended to listen to less loud music than the males (F=8.1, df=1, 597, p=.005). Table 18 gives the details of the means and standard deviations. Figures 135 and

136 outline the response frequencies.

Figure 135

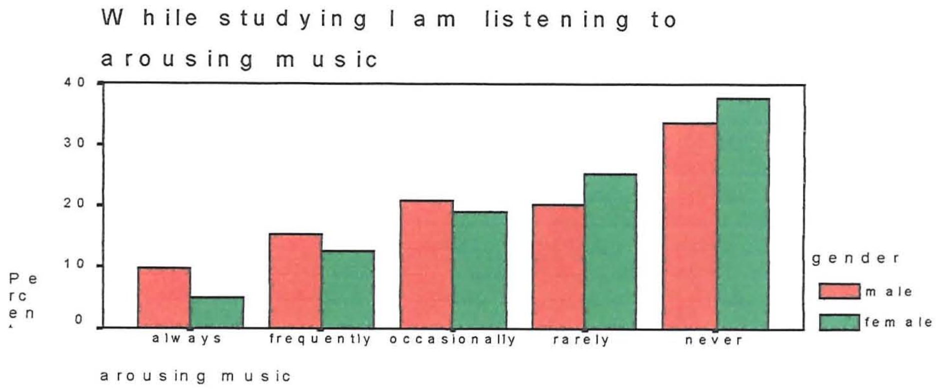
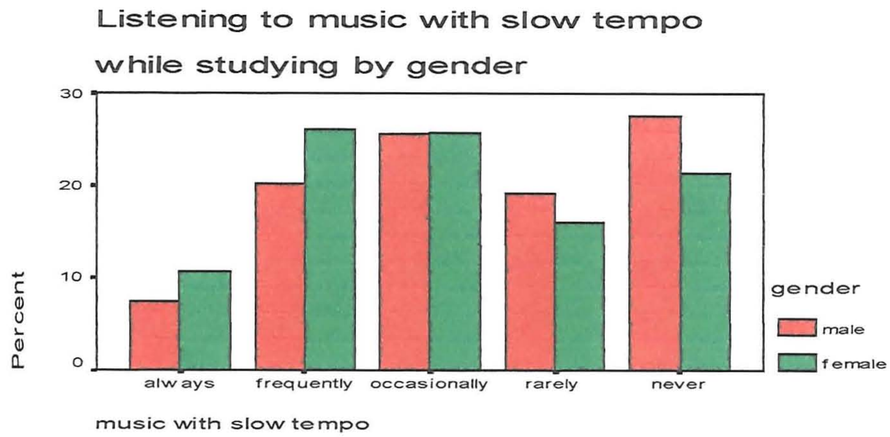


Figure 136



6.5.1 Summary

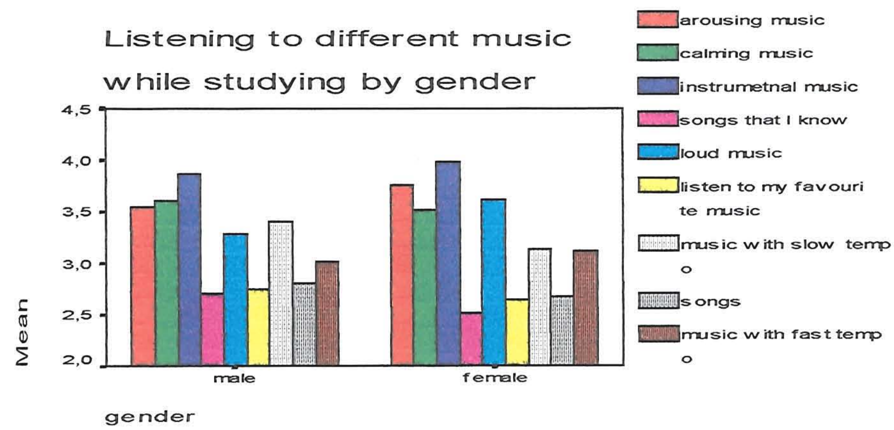
QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
While studying I listen to:	**MEAN**	**SD**	**MEAN**	**SD**				
listen to my favourite music	**2.74**	1.50	*2.62*	1.49	2.68	587	.109	.742
songs that I know	**2.70**	1.46	*2.48*	1.40	2.59	595	.342	.559
music with fast tempo	*3.00*	1.39	**3.10**	1.36	3.05	599	.078	.780
music with slow tempo	**3.39**	1.28	*3.11*	1.30	3.25	596	2.496	.116
songs	**2.82**	1.44	*2.67*	1.46	2.75	590	2.230	.137
loud music	*3.28*	1.50	**3.61**	1.39	3.45	597	8.099	.005

QUESTION	MALE		FEMALE					
instrumental music	*3.85*	1.26	**4.01**	1.14	3.93	594	.610	.436
calming music	**3.60**	1.28	*3.51*	1.26	3.55	597	1.439	.232
arousing music	*3.53*	1.35	**3.78**	1.22	3.65	596	.899	.344

TABLE 18 : Gender by the general kinds of music that students listen to while studying
The highest responses are with **bold**, the lowest are with *Italics*
The highest responses mean the least agreement

Figure 137 shows the overall differences in means between the responses of the girls and boys to each of the categories. A repeated measures analysis of variance showed that these differences in types of music listened to were statistically significant ($F=121.502$, $df=8$, $p=.05$). There were no significant interactions between these and gender.

Figure 137



6.6 Listening to different kinds of music while studying

When specific types of music were considered for all nationalities, e.g. classical, rock there were few gender differences. Table 19 gives the means, standard deviations and details of the statistical analysis. Significant differences were not found for classical music (female mean = 4.09, SD= 1.2; male mean = 4.29, SD = 1.07) and rock music (female mean = 3.51, SD= 1.37; male mean = 3.26, SD = 1.47). The females reported listening to more classical music, the males more rock. Figures 138 and 139 demonstrate the distribution of scores.

Figure 138

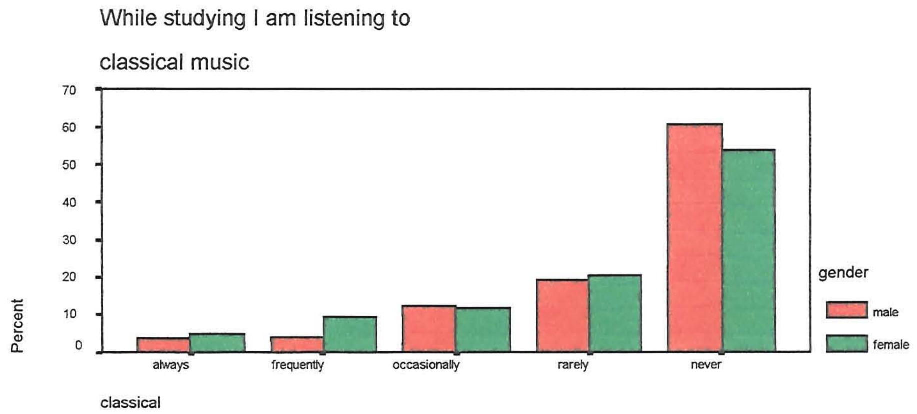
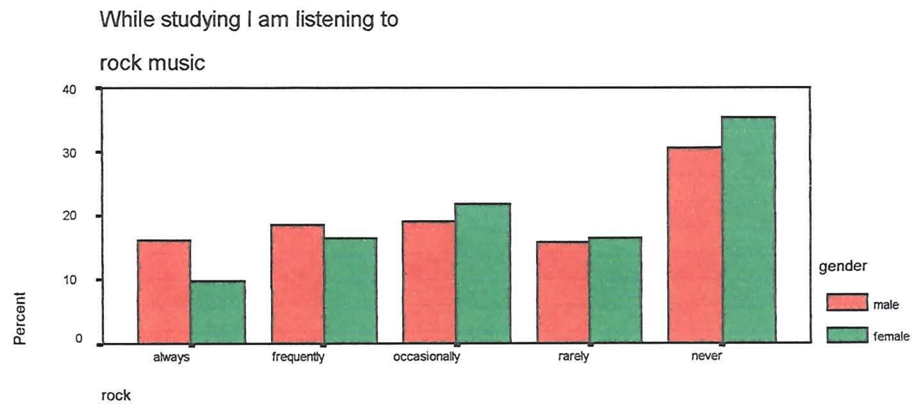


Figure 139



6.6.1 Blues, country, pop, soul and jazz

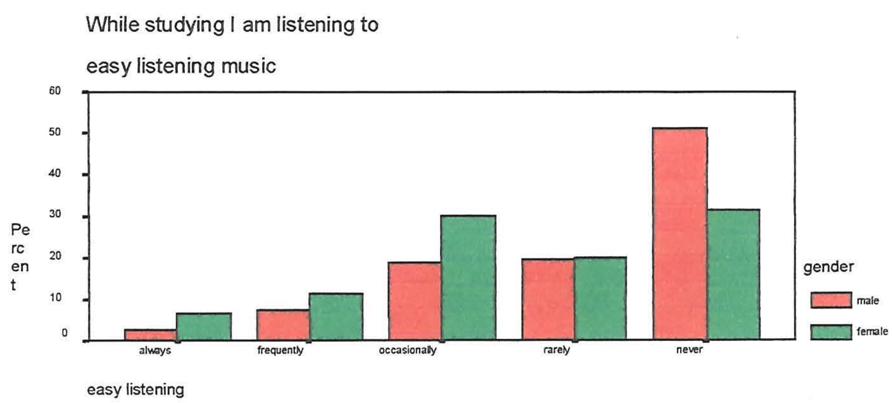
Blues, country, pop, soul and jazz were common in three countries: USA, UK and Greece.

Analysis of variance was undertaken to examine whether there were any gender differences between listening to these kinds of music while studying in these countries. The analysis showed that there were no statistically significant gender differences (See Table 19 at the end of the section).

6.6.2 Easy listening, reggae, folk/world music, dance, gospel

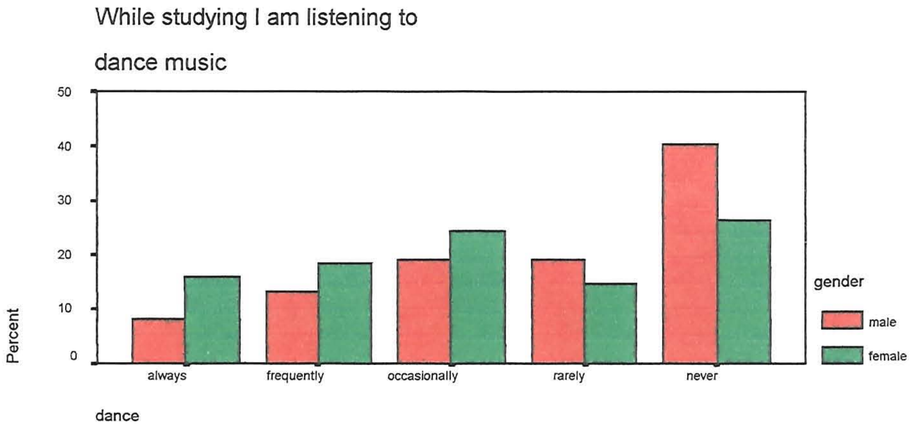
Easy listening music, reggae, folk/world music, dance and gospel were common in the UK and USA. There were significant gender differences in listening to easy listening music and dance music. While most students never listened to 'easy listening music' when they were studying, those who did were more likely to be female (mean = 3.58, SD= 1.23) than male (mean = 4.09, SD =1.11). This difference was statistically significant (F=13.9, df=1,27, p=.0001) .Figure 140 demonstrates the frequencies of response.

Figure 140



The girls were also more likely to listen to dance music (mean = 3.17, SD =1.42) than boys (mean = 3.71, SD= 1.33). This difference was statistically significant (see Table 19). There were no statistically significant differences between boys and girls regarding listening to reggae, folk/world music and gospel music while they were studying.

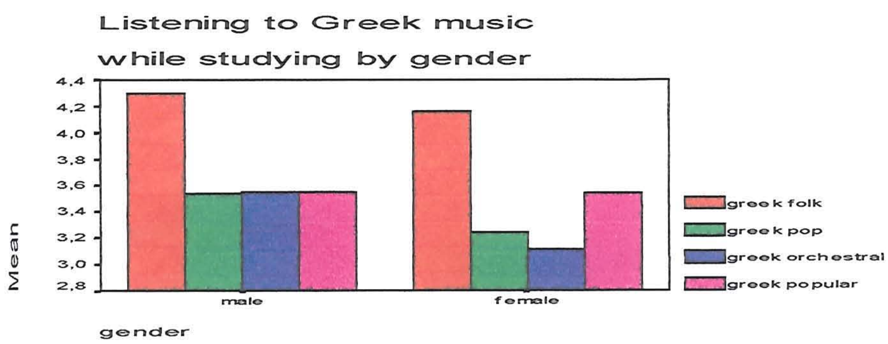
Figure 141



6.6.3 Greece: Greek pop, Greek orchestral, Greek folk and Greek popular music

Separate analysis was undertaken of the Greek sample in relation to listening to particular types of Greek music. There were no statistically significant gender differences. Figure 142 sets out the mean scores for Greek males and females in these categories.

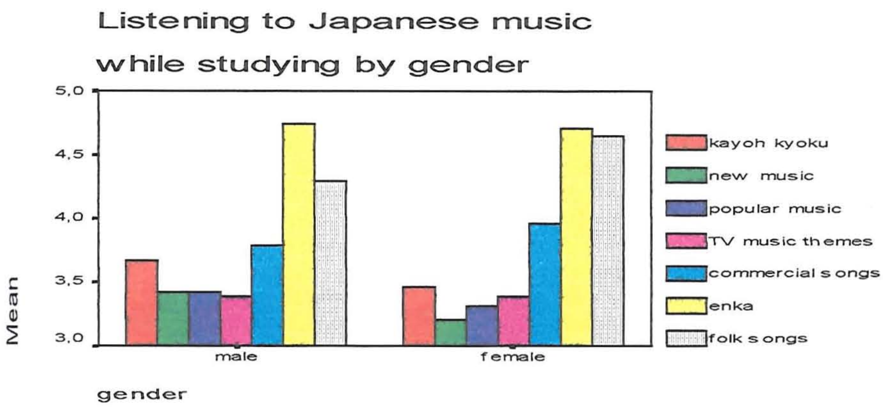
Figure 142



6.6.4 Japan: popular music, enka, new music, folk songs, kayoh kyoku, commercial songs, TV themes.

Separate analysis of the Japanese sample in relation to Japanese music also revealed no significant gender differences. The details are set out in Table 19. Figure 143 sets out the mean scores for Japanese males and females in these categories.

Figure 143



6.6.5 Summary

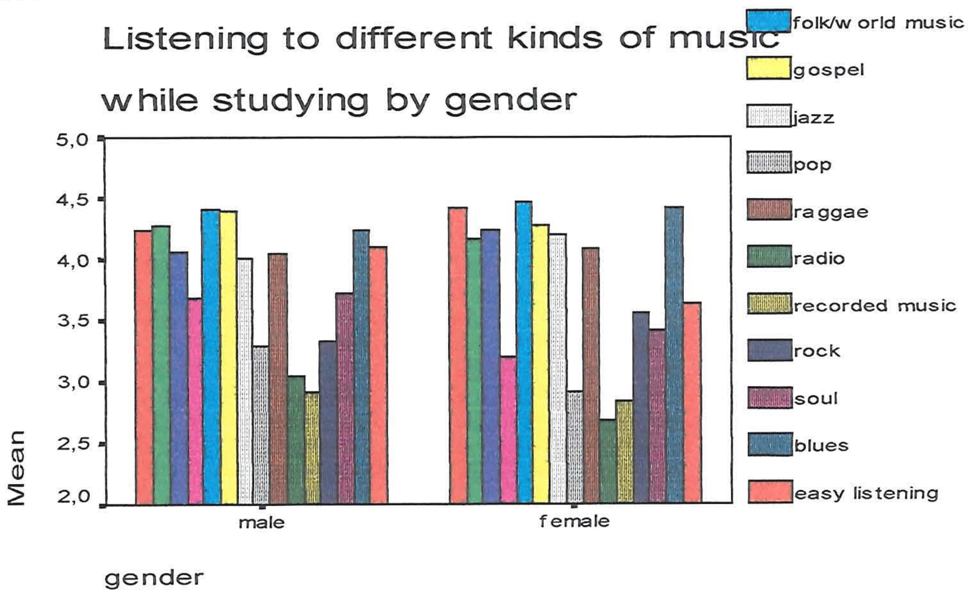
QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
While studying I listen to	**MEAN**	**SD**	**MEAN**	**SD**				
Classical	**4.29**	1.07	*4.09*	1.20	4.19	596	.614	.434
Rock	*3.26*	1.47	**3.51**	1.37	3.39	595	2.035	.155
Blues	*4.04*	1.17	**4.10**	1.12	4.07	1.15	2.079	.151
Country	*4.19*	1.22	**4.22**	1.15	4.21	448	.696	.405
easy listening	**4.09**	1.11	*3.58*	1.23	3.84	297	13.969	.000
folk/world music	*4.40*	.99	**4.46**	1.01	4.43	296	.387	.535
Reggae	*3.99*	1.21	**4.11**	1.18	4.05	298	1.508	.221
Pop	**3.28**	1.41	*3.04*	1.34	3.16	449	1.775	.184
Soul	**3.84**	1.34	*3.59*	1.36	3.72	448	.814	.368

QUESTION	MALE		FEMALE					
Dance	**3.71**	1.33	*3.17*	1.42	3.43	297	6.853	.009
Gospel	**4.35**	1.10	*4.26*	1.10	4.30	296	.581	.447
Jazz	*4.04*	1.17	**4.15**	1.05	4.09	446	1.527	.218
popular music (JP)	**3.35**	1.49	*3.32*	1.53	3.34	147	.009	.926
Enka (JP)	**4.75**	.715	*4.72*	.681	4.73	146	.052	.820
new music (JP)	**3.47**	1.50	*3.14*	1.61	3.30	148	1.715	.192
folk songs (JP)	*4.33*	1.05	**4.62**	.689	4.48	148	3.853	.052
kayoh kyoku (JP)	**3.74**	1.40	*3.46*	1.62	3.59	147	1.302	.256
Commercial songs (JP)	*3.77*	1.13	**3.94**	1.20	3.86	145	.811	.369
TV music themes (JP)	**3.39**	1.30	*3.36*	1.35	3.37	145	.011	.918
Greek pop	**3.48**	1.47	*3.23*	1.33	3.36	150	1.238	.268
Greek orchestral	**3.56**	1.36	*3.13*	1.39	3.36	149	3.745	.055
Greek popular	*3.51*	1.48	**3.54**	1.39	3.52	149	.024	.877
Greek folk	**4.27**	1.00	*4.15*	1.06	4.21	149	.456	.501
Radio	**3.36**	1.42	*3.12*	1.43	3.24	594	4.587	.033
recorded music	**3.17**	1.44	*3.15*	1.37	3.16	589	.083	.774

TABLE 19: Gender by the different kinds of music students listen to while studying
The highest responses are with **bold**, the lowest are with *Italics*
The highest responses mean the least agreement

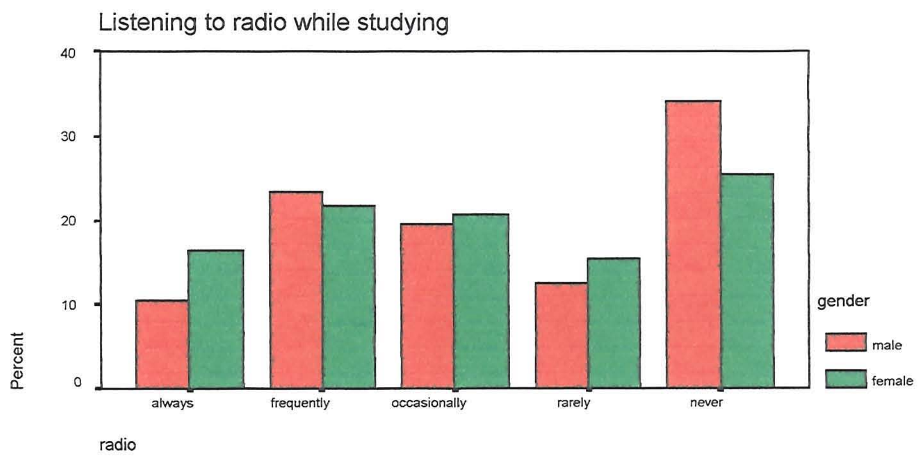
Table 19 shows the means for males, females, the overall mean, F value, and the significance for males and females listening to different types of music. Figure 144 shows the mean scores for overall gender differences in those categories which include all nationalities.

Figure 144



The final section addressed in this chapter was the preference for listening to radio or recorded music. There were differences between boys and girls in relation to listening to the radio (female mean = 3.12, SD= 1.43; male mean = 3.36, SD = 1.42). These differences were statistically significant ($F = 0.83$, df=1,592, $p = .033$). Figure 145 illustrates the distribution of scores. There was no significant gender difference in reported listening to recorded music.

Figure 145

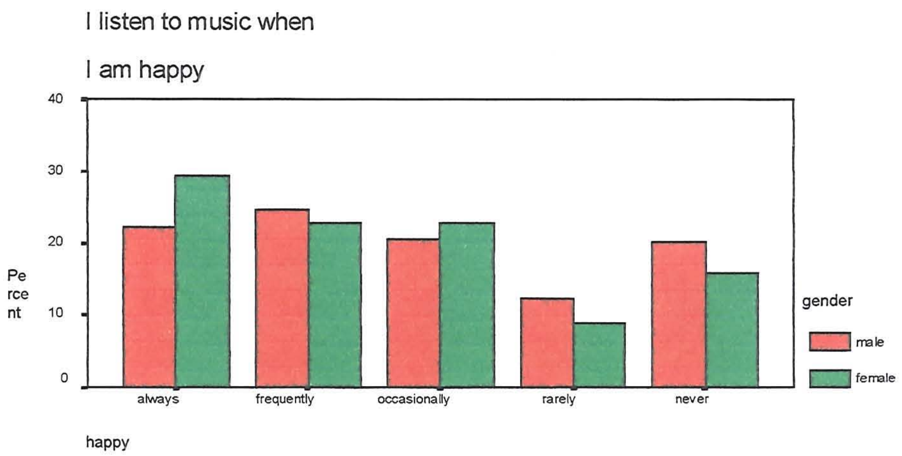


6.7 Further details about the perceived effects of, and the decision to listen to music while studying

The next section explores gender issues in relation to responses to questions about students' mood, and how this affected their decision to listen to music while studying. The statements to which they responded included: - *I listen to music while studying when I am happy, bored, like/don't like the subject, am disturbed by other noises around me.*

The only statistically significant difference (F = 3.4, df=1,579, p = .047) between boys and girls listening to music in relation to mood related to happiness. Girls reported listening to more music than boys when they were happy (female mean = 2.59, SD = 1.4; male mean = 2.84, SD = 1.43). Figure 146 illustrates the distribution of scores.

Figure 146

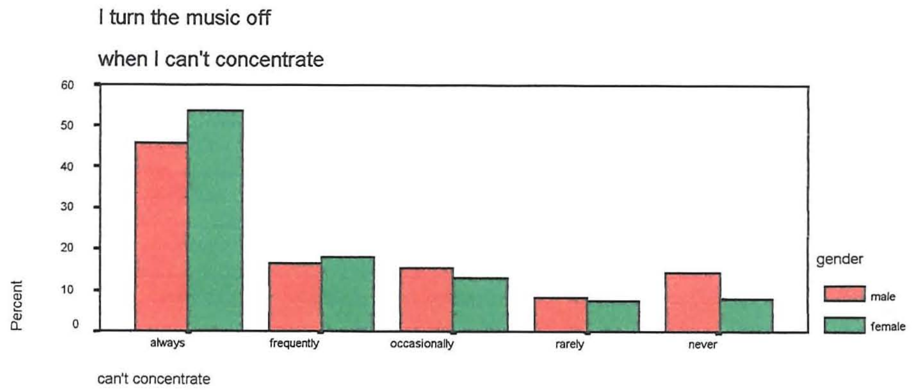


There were no significant gender differences in listening to music while studying when they were bored, liked or disliked the subject, or when they were disturbed by other noises around them.

6.7.1 What made students turn the music on and off

This section analyses the data relating to when students reported turning the music off: when they could not concentrate, when it made them nervous, when they were unable to learn, or when someone suggested they should. There were no statistically significant gender differences for the reasons given for listening to music while studying.

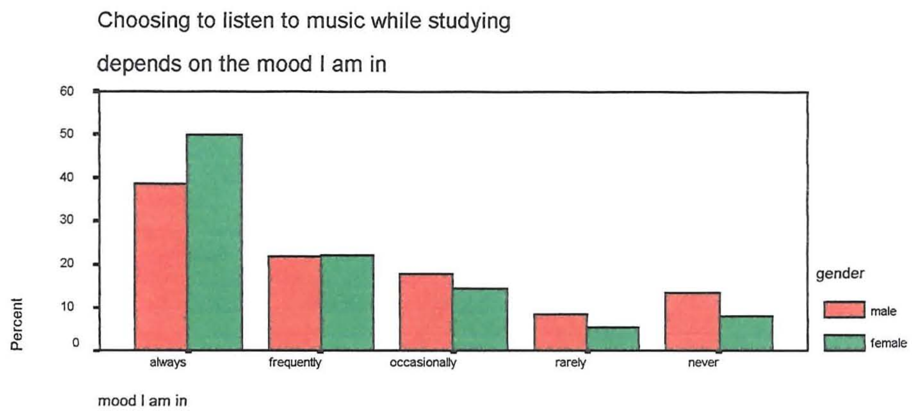
Figure 147



6.7.2 What factors influence the students' decision to listen to music while studying

When asked to respond to statements about their decision to listen to music while studying there were also no gender differences. Gender did not influence their decision to listen to music while studying.

Figure 148



6.7.3 Summary

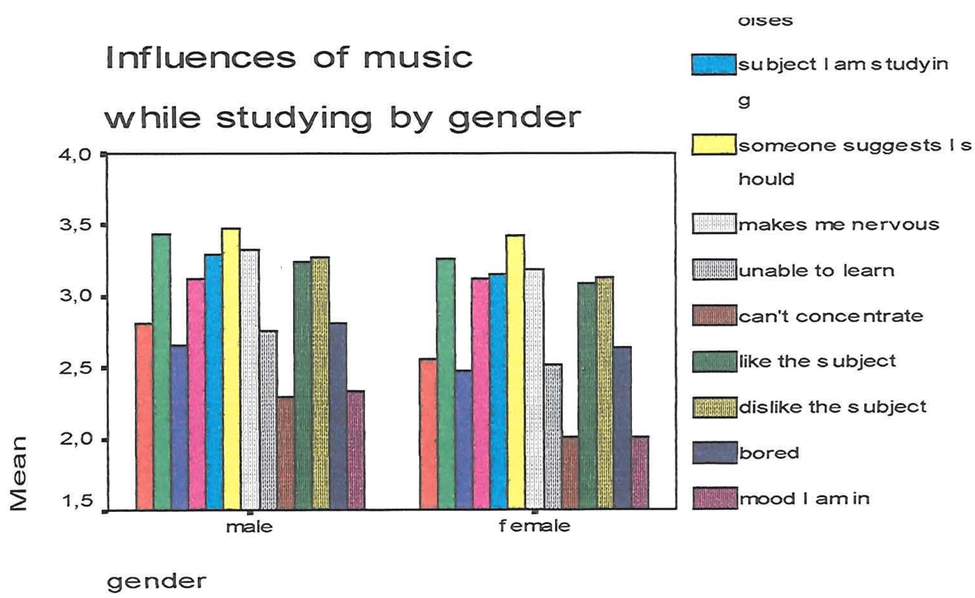
QUESTION	MALE		FEMALE		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD				
I listen to music when I am happy	**2.84**	1.43	*2.59*	1.40	2.71	581	4.006	.047

	MALE		FEMALE					
I listen to music when I am bored	**2.82**	1.42	*2.60*	1.44	2.71	589	3.382	.067
I listen to music when I like the subject	**3.29**	1.40	*3.14*	1.42	3.21	588	2.478	.117
I listen to music when I dislike the subject	**3.30**	1.44	*3.19*	1.48	3.25	583	2.873	.092
I listen to music when I am disturbed by other noises	*3.09*	1.49	**3.14**	1.48	3.12	584	2.826	.094
I turn the music off when I can't concentrate	**2.29**	1.47	*1.99*	1.30	2.14	583	2.474	.117
I turn the music off when it makes me nervous	**3.30**	1.60	*3.19*	1.60	3.24	584	.487	.486
I turn the music off when I am unable to learn	**2.75**	1.57	*2.55*	1.52	2.65	588	2.531	.113
I turn the music off when someone suggests I should	**3.42**	1.37	*3.38*	1.39	3.40	587	.554	.458
Listening to music depends on the type of music	**2.67**	1.41	*2.47*	1.38	2.57	569	3.492	.063
Listening to music depends on the subject I am studying	**3.31**	1.41	*3.18*	1.41	3.24	585	1.360	.245
Listening to music depends on the nature of the subject	**3.46**	1.35	*3.27*	1.35	3.37	587	2.814	.095
Listening to music depends on the mood I am in	**2.36**	1.41	*2.00*	1.26	2.18	590	2.067	.152

TABLE 20 : Gender by the decision of listening to music while studying
The highest responses are with **bold**, the lowest are with *Italics*
The highest responses mean the least agreement

Table 20 sets out the means, SDs and statistical analysis for the findings reported in this section. Figure 149 illustrates the comparison of means for male and female for each question.

Figure 149

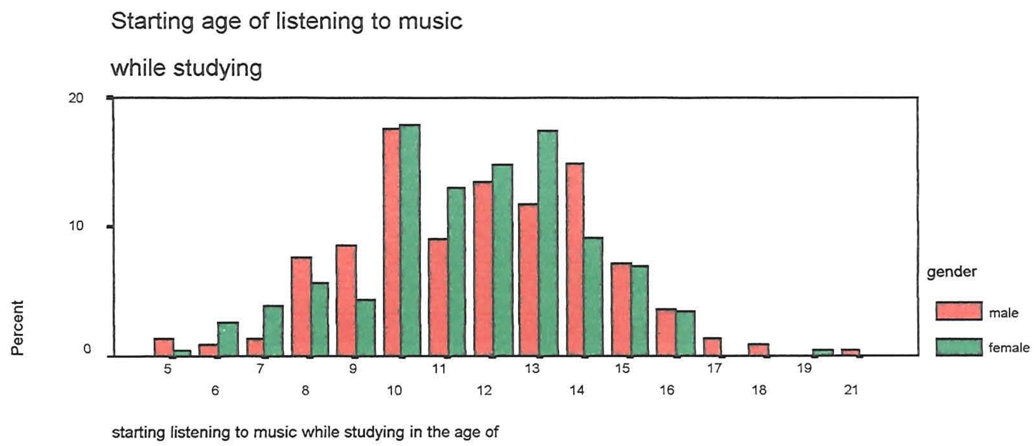


Repeated measures analysis of variance regarding what made them listen to music showed that there was no statistical significant difference in relation to gender, but that the interactions between them were statistically significant ($F=5.048$, $df=1$, $p=.025$). On the other hand, repeated measures analysis of variance for what made them turn the music off showed that there were no statistically significant differences between these responses and gender, and no statistically significant interactions.

6.8 General information

Students were asked to report their starting age of listening to music while studying. Figure 150 illustrates their responses. The average age for boys was 11.72, and for girls was 11.51. This was not statistically different.

Figure 150



A chi squared test showed that there were no statistically significant differences between boys and girls in their reporting of whether their family approved of them listening to music while studying, if they studied alone or listened to music using a walkman.

6.9 Interactions between gender, age and nationality

Analysis of variance was undertaken to establish if there were any interactions between nationality and gender, age and gender, and age, nationality and gender. The details of the analysis and the means for the cells are given in the appendices.

a. Interactions between nationality and gender

There were relatively few interactions between gender and nationality. The cell means and details of the statistical analysis are given in the appendices. Most of the interactions were related to the nature of the use of music when undertaking specific studying tasks. Many related to gender differences between students in the USA and the UK. For instance, the Japanese, male and female, made the least use of background music when memorising texts, followed by the Greeks. The American and UK students most often listened to background music when memorising texts but the American males did so more often than the females, while the reverse was the case for the UK students. This pattern also emerged in relation to listening to music when disliking the subject (see appendices for details).

The Greeks, overall, reported listening to music the most when unable to concentrate and when doing course work, the Japanese the least, regardless of gender. In both cases American males reported doing so more than UK males, while the reverse was true for the females.

In relation to playing music while reading or editing work, the Japanese males reported the most frequent playing of music followed by the Greeks, Americans and UK respondents. For the females, in reading the most frequent use was reported by the UK students, with no difference between the American and Greek females, while the Japanese reported the least use. For editing work the UK students again listened to music the most, followed by the Americans, Japanese and the Greeks. These interactions may reflect to some extent the nature of the learning activities required for different courses and the take up of those courses by males and females.

b. Interactions between gender and age

The pattern for listening to music was in some respects different for males and females at different ages. In general males reported more music related activities as they became older. So listening in free time, listening at home in the morning, and listening to music while editing previous work all showed age related increases in the male students up to age 20-21. For the females these activities were most often accompanied by music at age 16-17. Listening at home in the evening was most common for males and females at age 16-17 but least common for the males at 12-13 for the females at age 20-21.

For the males listening to music while studying to alleviate boredom was most reported at age 20-21 as was it assisting in relaxation. For females these were most reported at age 16-17. In other areas where there were age related differences they tended to be because the females reported higher levels at an earlier age. For instance, listening while studying a favourite or liked subject was reported most often by females at age 12-13, males at 16-17. This also applied to listening while learning a foreign language, listening to favourite music while studying, and listening to music while happy. Both genders reported listening to 'fast' music most at age 12-13 but for the males this trend reduced with age, for the females the lowest point was 16-17. The cell means and details of the statistical analyses are given in full in the appendices.

c. Interactions between nationality, gender and age

There were very few interactions between nationality, gender and age. They related to listening to music while taking a bath, music interfering because it increased arousal, and music inhibiting learning. There was also a significant interaction in relation to listening to soul music. The details are provided in the appendices. However, the cell sizes for each group are too small to provide the basis for generalisation to populations such as gender, age and nationality.

6.10 Conclusions

While it might have been anticipated that gender would be an important factor in determining personal listening habits, the effects overall were relatively minor when compared with nationality and age. Where there were significant differences females tended to listen to music more. They also seemed to prefer music, which was less arousing and were more sensitive to its effects seeming to use it to manipulate their mood and support them during studying.

CHAPTER 7

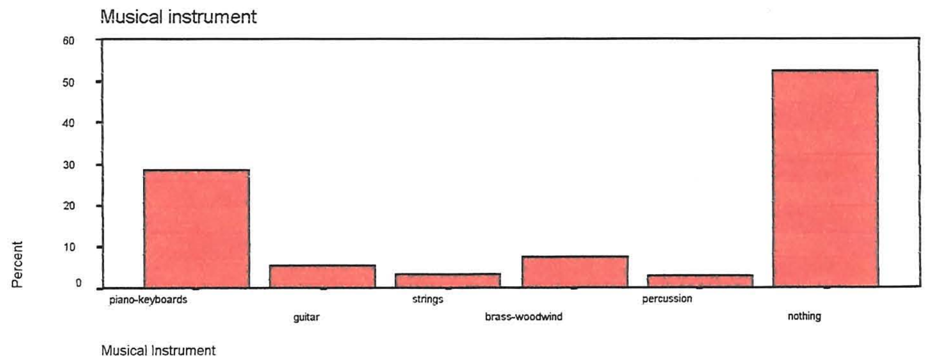
FINDINGS RELATING TO MUSICAL INVOLVEMENT

CHAPTER 7: FINDINGS ON MUSICAL INVOLVEMENT

This chapter considers whether being actively involved in music making affected student's decisions to listen to music while they were studying. In other words, 'does musical education influence music listening habits?'

Of the sample, 48% reported that they played a musical instrument or were actively involved in music making. They reported playing the piano, keyboard, guitar, strings, brass, woodwind and percussion. Figure 151 illustrates the breakdown of responses.

Figure 151



The number of students playing each type of instrument were analysed by nationality. Table 21 sets out the detail. There were significant differences between the nations in the types of instruments played and overall active involvement in music (x^2=110.251, df=15, p<.05).

Instrument	English	Greek	Japanese	American	TOTAL
piano-keyboards	44 (7.3%)	32 (5.3%)	79 (13.2%)	17 (2.8%)	172 (28.7%)
guitar	8 (1.3%)	8 (1.3%)	10 (1.7%)	6 (1%)	32 (5.3%)
strings	9 (1.5%)	3 (.5%)	2 (.3%)	6 (1%)	20 (3.3%)
Brass-woodwind	9 (1.5%)	6 (1%)	4 (.7%)	26 (4.3%)	45 (7.5%)
percussion	2 (.3%)	1 (.2%)	8 (1.3%)	6 (1%)	17 (2.8%)
nothing	78 (13%)	100 (16.7%)	47 (7.8%)	89 (14.8%)	314 (52.3%)
TOTAL	150 (25%)	150 (25%)	150 (25%)	150 (25%)	600 (100%)

TABLE 21 : Breakdown of types of instruments played

For all except the US students the most popular instruments were the piano and keyboard. The US students reported playing mainly brass or wood wind instruments. The Japanese students were more actively involved in music making than the other nationalities, while the Greek students reported playing instruments the least (approximately two thirds did not play a musical instrument). The English and the American students fell between these extremes.

The relationship between age and playing a musical instrument was examined. Table 22 sets out the data.

Instrument	12-13	16-17	20-21	TOTAL
piano-keyboards	66 (11%)	47 (7.8%)	59 (9.8%)	172 (28.7%)
Guitar	9 (1.5%)	15 (2.5%)	8 (1.3%)	32 (5.3%)
Strings	7 (1.2%)	4 (.7%)	9 (1.5%)	20 (3.3%)
brass-woodwind	23 (11.4%)	9 (1.5%)	13 (2.2%)	45 (7.5%)

Instrument	12-13	16-17	20-21	TOTAL
Percussion	9 (1.5%)	6 (1%)	2 (.3%)	17 (2.8%)
Nothing	87 (14.5%)	122 (20.3%)	105 (17.5%)	314 (52.3%)
TOTAL	201 (33.5%)	203 (33.8%)	196 (32.7%)	600 (100%)

TABLE 22 : Age differences in playing a musical instrument

There were significant differences in age relating to playing a musical instrument. The least reported musical involvement came from the 16 to 17 year olds. The most from the youngest age group. These differences were statistically significant ($X^2 = 24.7$, df= 10, p = .05). Overall, piano or keyboard was the most popular instrument, although a large proportion of the younger age group played brass or woodwind instruments.

Finally, the relationship between gender and playing a musical instrument was examined. Table 23 sets out the data.

Instrument	male	female	TOTAL
piano-keyboards	68 (11.3%)	104 (17.3%)	172 (28.7%)
guitar	22 (3.7%)	10 (1.7%)	32 (5.3%)
strings	10 (1.7%)	10 (1.7%)	20 (3.3%)
brass-woodwind	21 (3.5%)	24 (4%)	45 (7.5%)
percussion	13 (2.2%)	4 (.7%)	17 (2.8%)
nothing	166 (22.7%)	148 (24.7%)	314 (52.3%)
TOTAL	300 (50%)	300 (50%)	600 (100%)

TABLE 23 : Gender differences in musical involvement

There was a significant gender difference in instruments played (x^2=18.031, df=5, $p<.05$).

The girls more frequently played the piano, keyboards, and brass and woodwind, while the boys tended to play the guitar and percussion. More girls reported playing musical instruments than boys.

7.1 Music in everyday life

Students' musical involvement seemed to influence their decision to listen to music in only two aspects of their everyday activities, while eating and taking a bath. Those not actively involved in music making were less likely to listen to music while in the bath or when eating (see Table 24). These differences were statistically significant. Figures 152 and 153 illustrate the distribution of responses. There was no significant difference in response to the other questions about listening to music in everyday life between those actively involved in making music and those who were not.

Figure 152

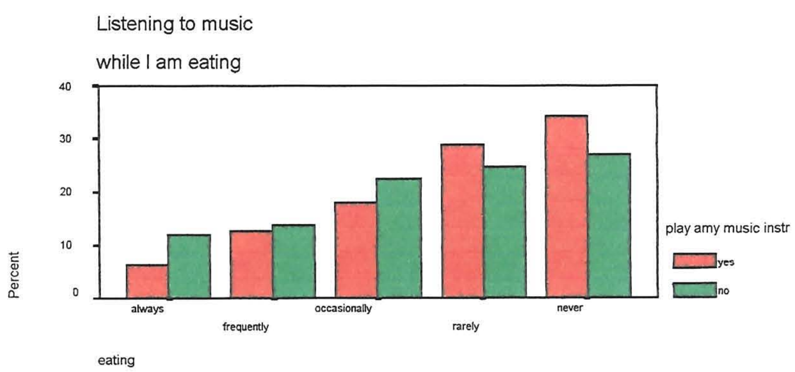
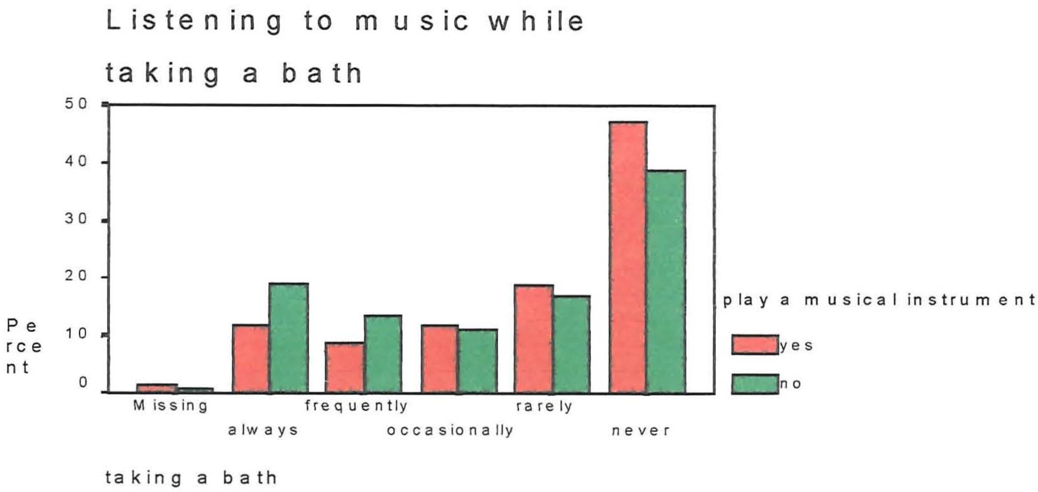


Figure 153



7.2 Summary

QUESTION	Play music		don't play music		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD				
Music listening in free time	*2.02*	.88	**2.05**	.96	2.04	600	.095	.758
Listening to music as a child	*2.31*	.99	**2.45**	1.02	2.38	593	2.889	.090
Listening to music when I wake up	**3.07**	1.53	*2.97*	1.56	3.02	590	.620	.431
Listening to music when I go to sleep	**2.87**	1.36	*2.86*	1.38	2.87	597	.010	.919
Listening to music at home in the morning	**2.82**	1.35	*2.78*	1.41	2.80	592	.136	.713
Listening to music at home in the evening	*2.36*	1.13	**2.50**	1.23	2.43	599	1.838	.176
Listening to music when I am eating	**3.72**	1.23	*3.41*	1.33	3.56	595	8.217	.004
Listening to music when I am taking a bath	**3.82**	1.42	*3.43*	1.57	3.62	594	9.651	.002
Listening to music when I am travelling	**2.33**	1.29	*2.15*	1.25	2.23	600	3.074	.080

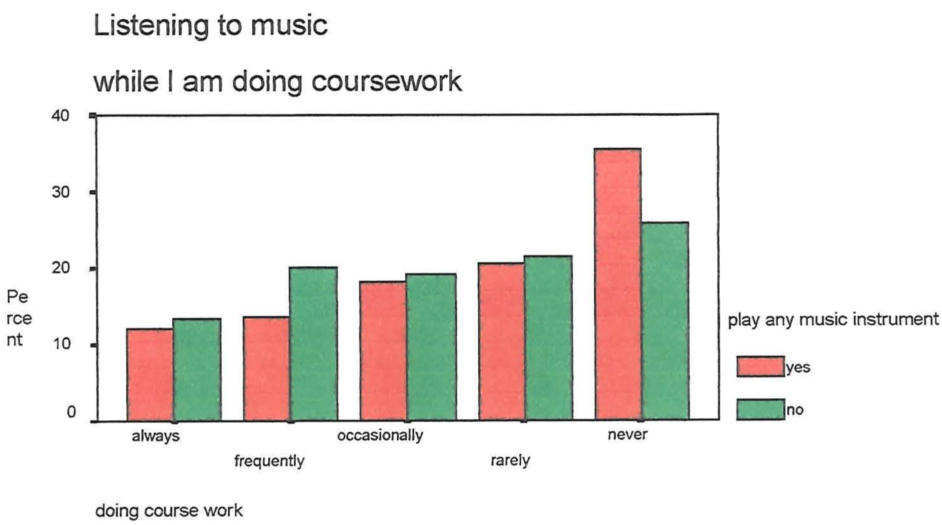
TABLE 24 : Musical involvement by listening to music in everyday life activities
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

Repeated measures analysis of variance showed that the differences between the variables in the table, for listening to music in everyday life activities, were significant (F=123.462, df=6, p<.05), and there were no statistically significant interactions between these and musical involvement (F= 3.809, df=1, p>.05).

7.3 Music and studying

There were few differences between those actively involved in making music and those who were not, in relation to the use of music to facilitate studying. Only in their responses in doing coursework (playing Mean=3.54, SD=1.20 and not playing Mean=3.26, SD=1.39) was there a significant difference between the two groups with the musicians listening to music less often. Table 25 gives the details of the means, standard deviations and statistical analysis. Figure 154 shows the distribution of responses for undertaking coursework.

Figure 154



7.3.1 Summary

QUESTION	play music		don't play music		MEAN overall	N	F	SIG
Listening to music while	**MEAN**	**SD**	**MEAN**	**SD**				
Studying	*3.01*	1.39	**3.16**	1.39	3.09	598	1.720	.190
revising for exams	**3.73**	1.34	*3.71*	1.41	3.72	598	.028	.867
Writing	**3.23**	1.39	*3.03*	1.38	3.12	600	3.296	.070
memorizing texts	*4.08*	1.21	**4.11**	1.20	4.10	600	.123	.726
reading	*3.48*	1.33	**3.60**	1.30	3.54	597	1.259	.262
doing course work	**3.54**	1.40	*3.26*	1.39	3.39	595	5.846	.016
editing work previously completed	*3.47*	1.30	**3.51**	1.41	3.49	596	.117	.733
solving problems	*3.48*	1.40	**3.51**	1.39	3.50	598	.240	.624
developing ideas	**3.48**	1.36	*3.32*	1.34	3.40	598	2.209	.138
thinking	**3.07**	1.37	*2.80*	1.40	2.93	599	.290	.591
listen with my favourite subject	*3.28*	1.42	**3.42**	1.41	3.35	598	1.514	.219
listen with least favourite subject	*3.27*	1.48	**3.35**	1.45	3.31	599	.410	.522
learning a foreign language	*3.86*	1.24	**4.04**	1.22	3.95	595	3.260	.072

TABLE 25 : Musical involvement by music listening while studying
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

7.4 Perceived effects of listening to background music

The perceived effects of listening to music while studying were not affected by students' musical involvement except in relation to learning faster. Students who were actively involved in music making believed that they learnt faster when there was music playing (see Table 26 for details).

QUESTION	play music		don't play music		MEAN overall	N	F	SIG
I believe that music:	**MEAN**	**SD**	**MEAN**	**SD**				
helps concentrate	**3.19**	1.34	*3.02*	1.34	3.10	597	1.340	.247
keeps company	**2.30**	1.20	*2.16*	1.25	2.23	596	1.737	.188
alleviates boredom	*1.95*	1.10	**2.00**	1.15	1.98	598	.282	.596
relaxes me	*1.79*	1.00	**1.83**	1.07	1.81	599	.231	.631

QUESTION	play music		don't play music					
helps me learn faster	*3.41*	1.33	**3.66**	1.26	3.54	596	5.583	.018
interferes so I can't concentrate	**3.34**	1.33	*3.21*	1.38	3.27	597	.554	.457
interferes because I sing along	**3.24**	1.41	*3.16*	1.45	3.19	597	.444	.505
interferes because it makes me too aroused	*3.99*	1.21	**4.03**	1.22	4.01	591	.160	.690

TABLE 26: Musical involvement by perceived effects of listening to music while studying
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

Overall, students' responses were very similar across all the questions relating to their perceptions of the effects of music on their studying. A repeated measures analysis of variance showed that there were significant differences between the responses to each category (F= 270.733, df=7, p<.05), but no interactions between these and musical involvement (F=.157, df=1, p>.05).

7.5 What kinds of music students listen to while studying

Students who were actively involved in making music were statistically more likely to listen to calming music when studying than those not involved in music. They were also statistically more likely to listen to their favourite music (see table 27) Figures 155 and 156 give the frequencies of response for each of these. It is noteworthy that reporting listening to calming music while studying was not differentiated by nationality, age or gender. Musical involvement was the only factor where this emerged.

Figure 155

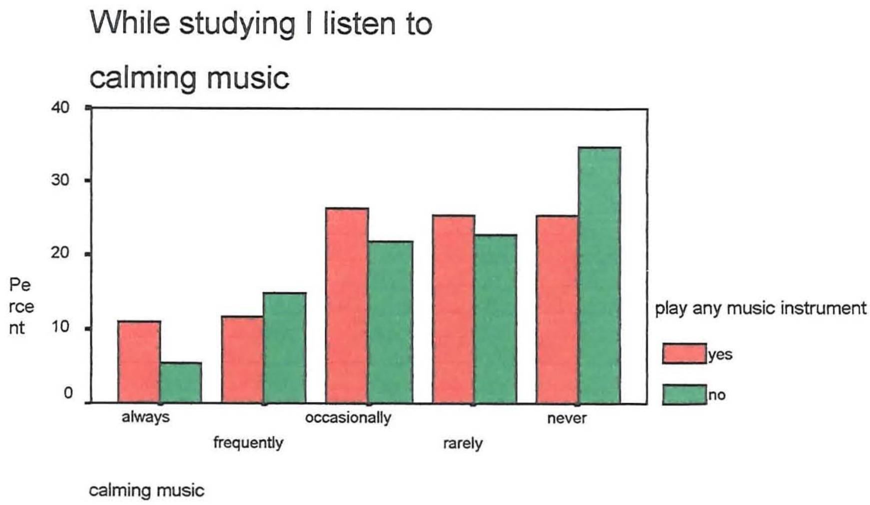
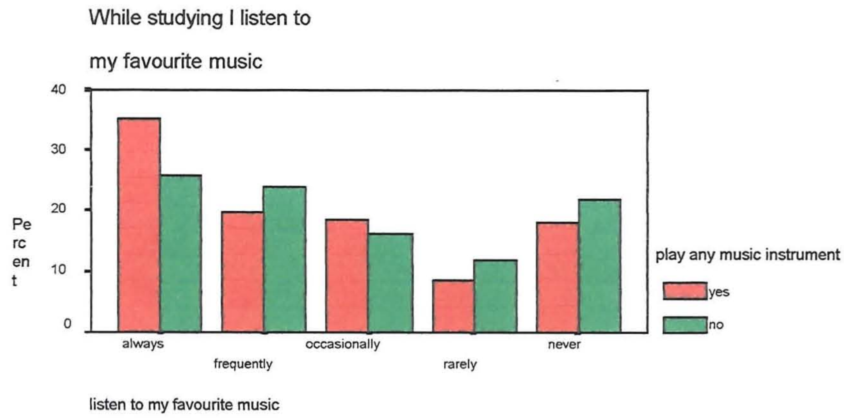


Figure 156



7.5.1 Summary

QUESTION	play music		don't play music		MEAN overall	N	F	SIG
While studying I listen to	**MEAN**	**SD**	**MEAN**	**SD**				
my favourite music	*2.54*	1.49	**2.80**	1.50	2.68	587	4.419	.036
songs that I know	*2.51*	1.40	**2.67**	1.46	2.59	595	2.478	.116
music with fast tempo	*3.02*	1.41	**3.08**	1.35	3.05	599	.213	.645
music with slow tempo	*3.15*	1.28	**3.34**	1.32	3.25	596	3.123	.078
songs	*2.66*	1.42	**2.83**	1.48	2.75	590	1.945	.164
loud music	*3.36*	1.46	**3.53**	1.45	3.45	597	2.448	.118

QUESTION	play music		don't play music					
instrumental music	*3.84*	1.24	**4.01**	1.17	3.93	594	3.180	.075
calming music	*3.43*	1.28	**3.67**	1.24	3.55	597	5.287	.022
arousing music	*3.64*	1.31	**3.66**	1.28	3.65	596	.016	.898

TABLE 27 : Musical involvement by listening to music in general while studying
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

7.6 Listening to different kinds of music while studying

There were broad differences between the kinds of music listened to by those actively involved in music making and those who were not. The musically involved group listened to more classical music, soul and jazz (Table 28 gives the means and standard deviations). There were no significant differences for rock, blues, country or pop music. In the UK and US sample significant differences between active music makers and those listening to music were found only for gospel music and folk/world music not for reggae or dance music (Figures 157 to 160). There was a greater difference in the Japanese sample, where there was a much greater interest in 'new' music among the musically involved group (see figure 161 for distribution). They also reported listening more frequently to folk songs and kayoh kyoku. Taken together these findings tend to suggest that those who are actively involved in music listen to a wider variety of different kinds of music.

Figure 157

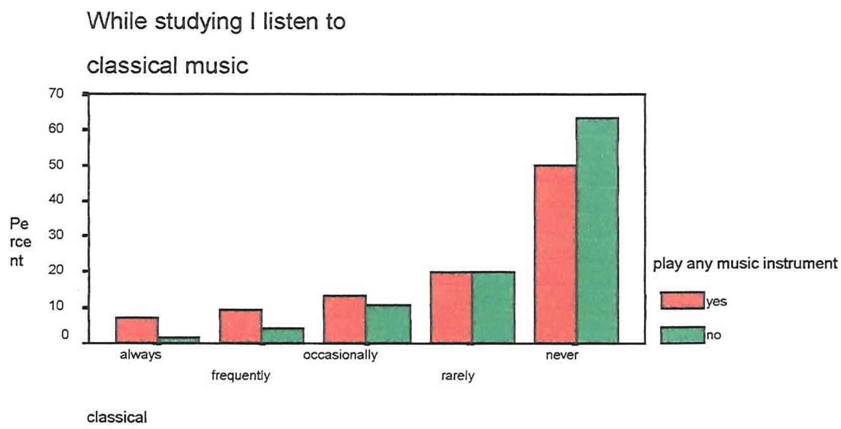


Figure 158

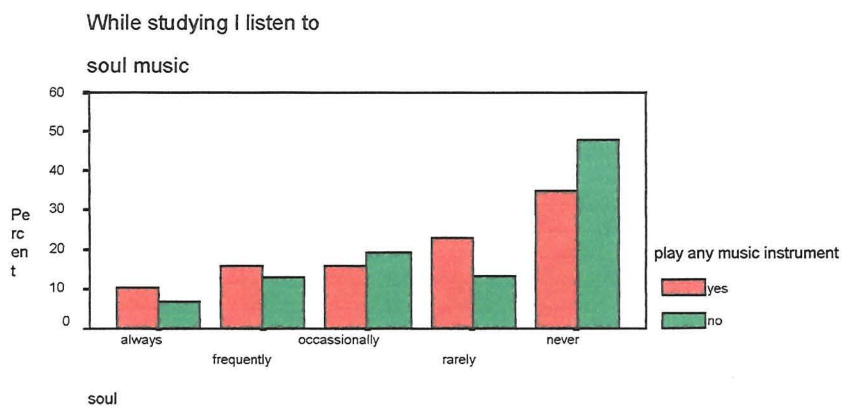


Figure 159

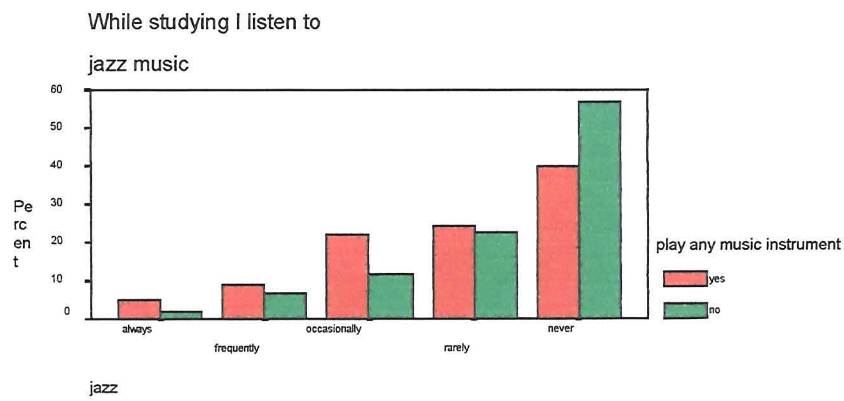


Figure 160

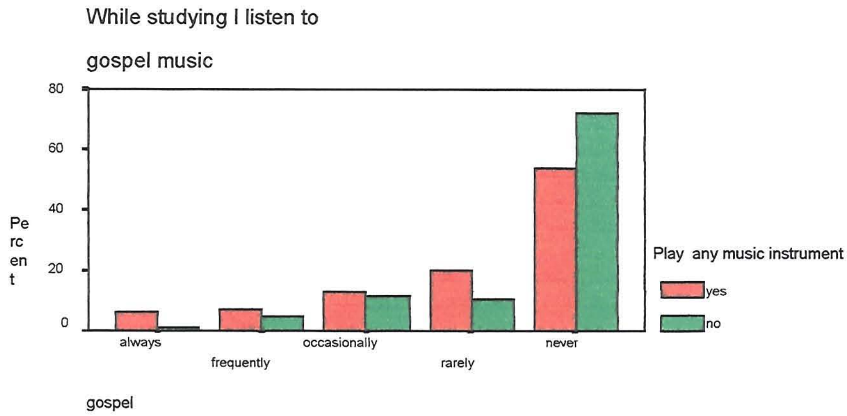


Figure 161

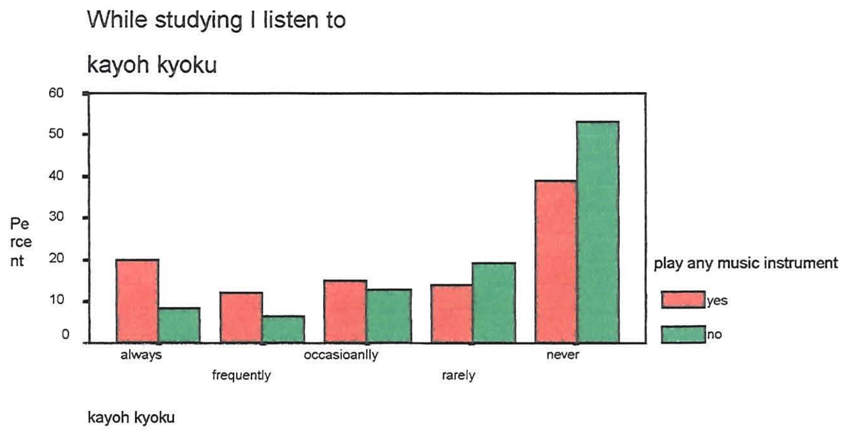
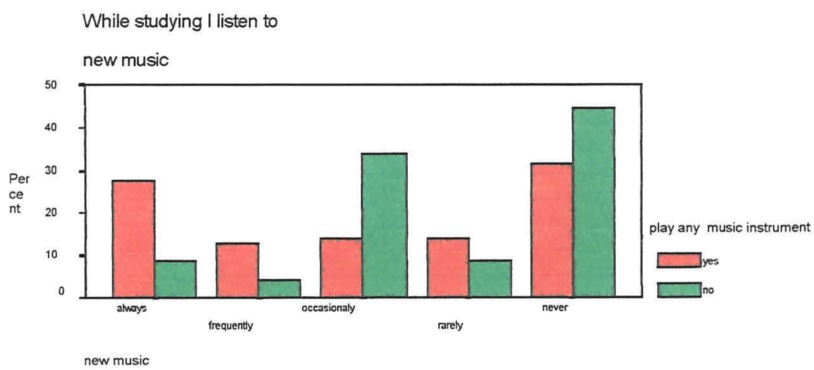


Figure 162



7.7 Summary

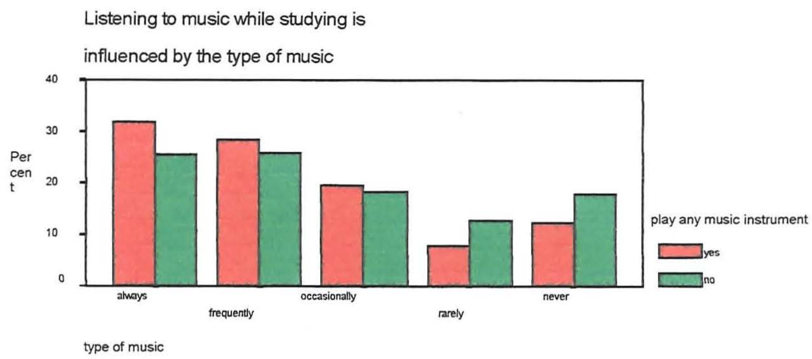
QUESTION	play music		don't play music		MEAN overall	N	F	SIG
While studying I listen to	**MEAN**	**SD**	**MEAN**	**SD**				
Classical	*3.96*	1.29	**4.40**	.95	4.19	596	21.960	.000
Rock	*3.27*	1.44	**3.49**	1.40	3.39	1.42	3.424	.065
Blues	*4.03*	1.16	**4.10**	1.14	4.07	450	.385	.535
Country	*4.17*	1.19	**4.23**	1.19	4.21	448	.302	.583
Easy listening	*3.74*	1.18	**3.92**	1.21	3.84	297	1.564	.212
Folk/world music	*4.22*	1.12	**4.60**	.86	4.43	296	10.500	.001
Reggae	*3.94*	1.23	**4.14**	1.17	4.05	298	2.038	.154
Pop	*3.02*	1.40	**3.26**	1.36	3.16	449	3.486	.063
Soul	*3.56*	1.38	**3.83**	1.33	3.72	448	4.125	.043
Dance	*3.35*	1.39	**3.50**	1.41	3.43	297	.826	.364
Gospel	*4.08*	1.23	**4.48**	.96	4.30	296	9.499	.002
Jazz	*3.85*	1.19	**4.26**	1.03	4.09	446	14.998	.001
Popular music(JP)	*3.26*	1.56	**3.50**	1.39	3.34	147	.749	.388
enka(JP)	**4.75**	.712	*4.71*	.66	4.73	146	.109	.741
New music(JP)	*3.08*	1.63	**3.76**	1.30	3.30	148	6.225	.014
Folk songs(JP)	*4.35*	.985	**4.76**	.560	4.48	148	7.038	.009
Kayoh kyoku(JP)	*3.40*	1.57	**4.02**	1.31	3.59	147	5.506	.020
Commercial songs(JP)	**3.91**	1.18	*3.75*	1.15	3.86	145	.539	.464
TV music themes(JP)	*3.35*	1.34	**3.43**	1.30	3.37	145	.098	.755
Greek pop	*3.30*	1.40	**3.39**	1.41	3.36	150	.136	.713
Greek orchestral	*3.20*	1.43	**3.43**	1.37	3.36	149	.943	.333
Greek popular	**3.68**	1.41	*3.44*	1.44	3.52	149	.899	.345
Greek folk	**4.29**	1.02	*4.18*	1.04	4.21	149	.345	.558
Radio	**3.33**	1.42	*3.16*	1.43	3.24	594	2.217	.137
Recorded music	*3.14*	1.42	**3.17**	1.39	3.16	589	.077	.781

TABLE 28 : Musical involvement by the different kinds of music listen to while studying
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

7.8 Further details about the perceived effects, and the decision of listening to music while studying

There were no significant differences between responses from musically active and inactive students in the reasons given for listening to music except in relation to the type of music listened to. The musically active students appeared to be more discriminating about the kind of music they listened to while studying (table 29 gives the details). Figure 163 illustrates the distribution of responses.

Figure 163



QUESTION	play music		don't play music		MEAN overall	N	F	SIG
	MEAN	SD	MEAN	SD				
I listen to music when I am happy	*2.66*	1.36	**2.76**	1.48	2.71	581	.642	.423
I listen to music when I am bored	*2.61*	1.37	**2.80**	1.48	2.71	589	2.707	.100
I listen to music when I like the subject	*3.17*	1.43	**3.25**	1.40	3.21	588	.474	.491
I listen to music when I dislike the subject	*3.22*	1.45	**3.27**	1.47	3.25	583	.145	.704
I listen to music when I am disturbed by other noises	*3.10*	1.48	**3.13**	1.50	3.12	584	.063	.802
I turn the music off when I can't concentrate	**2.15**	1.41	*2.13*	1.38	2.14	583	.044	.834
I turn the music off when it makes me nervous	*3.18*	1.65	**3.31**	1.55	3.24	584	1.075	.300
I turn the music off when I am unable to learn	**2.72**	1.55	*2.58*	1.53	2.65	588	1.155	.283
I turn the music off when someone suggests I should	**3.44**	1.35	*3.37*	1.41	3.40	587	.405	.525
Listening to music depends on the type of music	*2.40*	1.34	**2.72**	1.43	2.57	569	7.119	.008
Listening to music depends on the subject I am studying	**3.25**	1.38	*3.24*	1.43	3.24	585	.014	.905

	play music		don't play music					
Listening to music depends on the nature of the subject	*3.34*	1.33	**3.39**	1.36	3.37	587	.251	.616
Listening to music depends on the mood I am in	*2.08*	1.27	**2.27**	1.41	2.18	590	2.949	.086

TABLE 29 :Musical involvement by the decision of listening to music while studying
The highest responses are with **bold** and the lowest are with *Italics*
The highest responses mean least agreement

Musical involvement did not influence the student's starting age of listening to music while studying, the approval or disapproval of their family, whether they studied alone or not or used walkman, as the chi- square test showed. Both groups responded similarly to these statements.

7.9 Conclusions

Overall, active involvement in music making had relatively little influence on listening to music in everyday life or while studying. Its main effect seemed to be in the choice of music which was broader in the musicians and in the extent to which they were more discriminating in the kind of music they would listen to while studying.

CHAPTER 8

EXPERIMENT

CHAPTER 8: Experiment

8.1 Rationale for the experiment

The information obtained from the questionnaire survey suggested some reasons why students listened to music while they were studying and gave an indication of the kind of music they listened to, what kinds of studying the music accompanied and the perceived effects of the music. What the survey was unable to do was assess the actual influence of different types of music on performance. The model set out in Chapter 9 suggests that the effects of music on behaviour are mediated by a range of factors which interact with each other. The experiment described in this part of the research will attempt to consider the effects of music on task performance taking account of some of these factors. In particular it will examine the effects of arousing and calming music on adult student's performance on two different tasks, a logical reasoning task and a realistic task focusing on text understanding. The study will take account of the mediating effects of metacognition i.e. the extent to which students are aware of and attempt to ameliorate the effects that the music may be having on their studying. For example, if the music that they are listening to is perceived as distracting, a conscious decision can be made to concentrate harder, block the music out and continue with the task, turn the music off, or change it. If the outcome of the studying activity is regarded as crucial e.g. an examination, learners may be able to cope with quite high levels of distraction and maintain concentration. On the other hand, where tasks are perceived as boring, the use of background music may assist in maintaining arousal levels at an optimum level so that concentration can be maintained.

8.2 Rationale for the methodology

In order to study the actual effects of listening to background music on studying it is not enough to ask participants what they believe the effects to be. Ways of systematically and reliably assessing the actual effects must be found. One of the most effective methods of testing a prediction (e.g. that background music affects students' performance) is to manipulate the independent variable, hold all other variables constant, and observe the changes on the dependent variable. This experimental method has become the most commonly used in research concerned with the effects of background music on studying. In a typical study, the participants are given a specific task to complete, half in a music condition, the remainder in a control group with no music playing in the background. Much earlier work adopting this paradigm did not specify the nature of the music being played. Neither was the music rated by the participants as conveying to them a particular mood. Generally, the perceived effects of the music on performance, for instance, whether they believed the music helped them or not, have generally not been considered.

The present study attempted to address some of these issues. Firstly, two pieces of music were used which had previously been rated by student groups as either highly arousing or very calming and relaxing. There was also a control group with no background music. Consideration was given to using a wide range of music but it was decided to restrict the choice to two classical pieces which were distinctive in their arousing properties and which were instrumental to avoid interference from verbal material. While this facilitated a clear comparison of the effects of the arousing or calming properties of these pieces of music it obviously limited the extent to which the findings could be generalised to other classical music, other genres and vocal music.

Two contrasting tasks were undertaken, the first requiring the students to utilise logical thinking skills, the second to demonstrate their understanding of text in three conditions of text difficulty. During the tasks students' behaviour was observed and their reactions to the music assessed. While a repeated measures design might have offered better control, the difficulties of avoiding the effects of practice on the tasks were considered to be too great to have been successfully overcome. For this reason an independent groups design was adopted, in which the subjects were randomly selected and divided into three groups- one for each condition of the experiment. The participants were psychology students at a post-graduate Institute of Education. This was expected to considerably reduced the amount of random variation due to individual differences

After consideration of the existing literature, two tasks were chosen: a logical reasoning task and a task of text understanding. The logical reasoning task was selected as a well established, valid and reliable measure which would rely to a lesser extent on students prior knowledge than material which was domain specific. Although there have been debates about the extent to which such tests are unbiased and do not rely on prior knowledge it was felt that nevertheless it would provide a more objective measure against which to assess the effects of the music than other material particularly given that the students were all post-graduate and might reasonably be expected to be capable of undertaking such tasks. A second task, which was more ecologically valid was selected to attempt to more nearly approach the way students studied in their everyday life.

This was based on reading and answering questions about three texts relating to depression a topic with which all the students would have been familiar as they were psychology graduates. Following the pilot study a questionnaire was developed for those in the music groups exploring how their experience of having the background music playing.

8.3 Pilot Work

A full pilot study was performed in relation to the logical reasoning task. In the case of the text understanding task and the music questionnaire the materials were piloted with a small group of students. A group of 41 postgraduate psychology students at a post graduate Institute of Education were randomly allocated to one of three groups, a control group, a group with arousing music and a group with relaxing calming music. In these conditions they each completed the logical reasoning task. The music had been previously rated by a similar group of students as either calming or arousing. For the first group (13 students) highly arousal (stimulating) music was played in the background throughout the period while they were studying, specifically "The Sabre Dance" from Gayane, by Khachaturian. The second group of 14 students listened to low arousal (calming- relaxing) music playing in the background "Gymnopedies III and I" by Satie. The control group (14 students) completed the task with no background music.

8.3.1 Procedure

Students worked in different rooms so the music from the one room could not be heard by the other groups. They were given the logical reasoning task which included instructions.

They had to respond to the logical sequence of three statements indicating whether the reasoning was right or wrong, e.g.

All these bonbons are chocolate creams;

All these bonbons are delicious;

Chocolate creams are delicious.

In this case the answer is wrong. The correct response should be "Some chocolate creams are delicious". The music was repeated in the background throughout task completion. The volume of each of the CD players was checked beforehand to ensure that it was of appropriate volume and similar for both CD players. The students were asked to take as much time as they needed to complete the task. They were asked to record their age on the response sheet and their starting and finishing times. The researcher made observations of the behaviour of the students while they were working and noted their informal comments about the music when the task was completed.

8.3.2 Results

A mark was awarded for each correct response with a maximum of 20. A one way analysis of variance test revealed no statistically significant difference between the scores of the students in the three groups. The mean score for the calming music group was 11.8, for the arousing music group 13.1, and for the control group 11.5, (F = 2.2, DF=2, Sig =.295). Similar results were obtained for the time taken to complete the task: the mean for the calming music group was 10.2 minutes, for the arousing music group 10 minutes, and for the control group 9.7 minutes (F=1.2, DF=2, P=.928). See Table 30.

	Mean of scores	time for completion
calming music	11.8	10.2
arousing music	13.1	10
Control	11.5	9.7

Table 30 : Results of the pilot study (means for the scores and the time needed)

Although there was no statistical difference in the scores or time taken between groups , the students reacted in very different ways to the music. The students in the calming music group reported enjoying the music and feeling relaxed. No discomfort or difficulty with task completion was apparent. Some said that "*the music made them sleepy*", and others "*found the music very relaxing*". The group with the arousing - stimulating music playing in the background reported difficulties in concentration ("*I could not stand it, and I wanted it off*"). Some of them covered their ears with their hands and said that they wanted to finish soon to get away from the music ("*I was trying so hard to concentrate but that seemed impossible, I just wanted to finish with it and get out*" " *For me, the hardest part was to wait for the more calm parts of the music to continue my work*"). These responses were common among students in the arousing music group. Whatever the subjective experiences of the students in relation to the music all completed the task and there were no significant differences in their responses. Presumably the students were adopting coping strategies to help them complete the task. Those students in the arousing music group reported either trying to block the music out and continue with their work, or waiting for the calmer parts of the music to make their responses. In contrast those in the calming music group reported being able to work easily throughout the time span.

The pilot study revealed that the music did appear to have an effect on the students' studying. They believed that it was affecting their performance and where it was perceived as distracting they adopted strategies to assist them in coping. Despite this there were no differences in performance. For this reason it was decided that in the main study the students would be presented with a formal questionnaire on completion of the tasks which would explore their subjective experience of the music on their studying in a more systematic way. It was also decided to add a more typical studying task for the main study, in part to increase ecological validity, but also to avoid the possibility that the logical reasoning task assessed such specific skills and prior knowledge that the influence of the music on performance was minimal.

8.4 The main study

8.4.1 The Logical Reasoning task

The first task, students were given was the same logical reasoning task as in the pilot study. There were 20 sets of three sentences to read. Some of these exemplified logical reasoning others did not. The participants were required to decide whether the reasoning was 'right' or 'wrong'. Two examples are given in Table 31. The students were not required to provide the correct answers. The full test is given in the appendices.

All these bonbons are chocolate creams; All these bonbons are delicious. Chocolate creams are delicious. RIGHT OR WRONG. The answer is WRONG, being in excess of the right one which is "Some chocolate creams are delicious". Some pillows are soft; No pokers are soft. Some pokers are not pillows. The answer is WRONG. The correct answer is "Some pillows are not pokers".
TABLE 31 : Logical Reasoning Task example

8.4.2 The texts

The second task aimed to explore the relationship between background music and text understanding. As the participants were psychology students a decision was taken to select a text which would be relevant to them, i.e. a psychological text. It was decided to focus on the topic of depression, one with which they would have some familiarity in their lives. It was decided to chose texts of different levels of difficulty as previous research has demonstrated that optimal arousal levels differ in relation to task difficulty. Where tasks are very difficult, lower levels of arousal lead to better performance. Where tasks are easy, arousal levels need to be higher to ensure appropriate concentration. Three texts of different levels of difficulty were selected each of similar length (around 400-500 words).

The level of difficulty was established in relation to the difficulty and technical nature of the language used and the actual content. The texts were written for different purposes and for different groups of people. Text 1 (easy) was taken from Depression Alliance (1998), a leaflet distributed by General Practitioners (GPs) and organisations, which provides information about depression and how to deal with it. The language of this leaflet was deliberately simple to make it accessible by a wide audience. The first paragraph of the text is set out in Table 32 The language is simple, the sentences are short and the topic is presented clearly.

"Depression is an illness in which there is persistent sadness with feelings of helplessness. These feelings may affect a person's ability to carry out normal daily activities. *Depression may also be accompanied by a wide variety of physical and psychological symptoms.* *Depression can occur at any age and can affect anyone. Women are affected about twice as often as men. Women may become depressed after childbirth (post natal) and during the menopause, but it may also occur at any other stage in life."*
TABLE 32 : Easy text

Text II (moderately difficult) was taken from a chapter called affective disorders in an undergraduate student textbook called New Perspectives in Abnormal Psychology, by Stern, and Mendels (1980). Addressing an audience of students in higher education, the language is more complex, the sentences are longer and the content more detailed (see Table 33).

"The affective disorders are a group of conditions characterized by an abnormality of mood or feeling- affect. In depression the primary mood is one of sadness or apathy; whereas in mania, euphoria or irritability predominates. "Affect" (pronounced with the accent on the first syllable) is used to connote emotional feeling and the outward manifestations of that feeling. Although some persons do make distinctions among the terms affect, mood, emotion, and feeling, there is no clear agreement as to the shades of meaning of these terms. Affect is usually distinguished from cognition, or the processes involved in thinking; this distinction is not always easy to make."
TABLE 33 : Moderately difficult text

Text III (difficult) was taken from the introduction of a scientific article in the Annual Review of Medicine (1988; 49:341-61). The language is technical, the writing scientific, and the sentences long and complex. The text is illustrated in Table 34.

"Functional brain imagining techniques, which permit noninvasive measures of neurophysiology and neuroreceptor binding, are powerful and sensitive tools for research aimed at elucidating the pathophysiology of major depression. The application of these technologies in depression research has produced several studies of resting cerebral blood flow (BF) and glucose metabolism in subjects imaged during various phases of illness and treatment. This review examines these data and the principles relevant to their interpretation and discusses the insights they provide into the anatomical correlates of depression."
TABLE 34 : Very difficult text

No information was given as to source or authorship of any of the texts and in the event no reader recognised any of the texts. (Full texts are in the appendix). Students were given the text to read and a set of questions to answer to establish their understanding and possible emotional reactions to the text that might be affected by the nature of the background music. There were five questions (see Table 35). Questions 1, 4, and 5 were designed to explore the student's understanding of the text. Questions 2 and 3 were designed to assess whether the text created any emotional reaction in the students.

1. What do you see as the main point or points in the text? 2. Report anything you disagree with in the text and say why. 3. What, if anything surprised you in the text? Why? 4. What do you think the author was trying to achieve in writing the text? 5. Suggest a title for the text.
TABLE 35 : Question about the text

Students were asked to underline those sections of the text to which they gave most thought in their reading. This instruction was included to encourage the students to read the text carefully and to adopt a deep approach to the task (Marton and Saljo, 1997, Hallam and Francis, 1998). The texts were assessed for their level of difficulty by two independent experts. There was total agreement about the differential level of difficulty. The task was piloted on a small group of students. The instructions were found to be clear. The students were able to respond to all the questions in relation to each text.

8.4.3 The Process

The sample for the study consisted of students from a regularly timed class of 40 students. This relatively small sample constrained the extent to which an ideal design could be implemented. Consideration was given to adopting a repeated measures design but this was abandoned as being impractical as it would have required the development of three equivalent tasks which could be reliably assumed to yield similar results with repeated use with each music condition and the control group . For this reason an independent groups design was chosen. As the focus of the study was the effect of the music, having two music groups and a control group was crucial to answer the research questions. The second priority was to examine the effect of task difficulty in the realistic reading and understanding task. Ideally, the presentation of the two tasks, logical reasoning and understanding, would have been counterbalanced within groups but this would have led to a very small sample experiencing each condition. For this reason, and because any order effects would have applied equally across the music conditions, it was decided that counterbalancing would not be implemented. This could have served, overall to depress the performance of all the students on the reading and understanding task as they may have been experiencing fatigue having already completed one task. Alternatively, it may have enhanced performance if the logical reasoning task stimulated thought. In either case the effects might have been expected to be similar across each of the three groups.

8.4.4 The music questionnaire

Anecdotal evidence from the pilot study, as mentioned earlier, showed that students adopted different strategies for coping with the music that was playing in the background. The students that listened to the calming music felt relaxed, or sleepy, they enjoyed it and some would have preferred listening to the music rather than completing the task. *"I enjoyed it and I wanted to listen to the music rather than doing the task"*, *"I felt so relaxed and I enjoyed doing the task"*, *"I wondered who composed this music, since it was great, and it helped me continue with the work"*. Those in the arousing music group responded differently *"I hated it, I wanted it off"*, *"I found it too loud"*, *" I just blocked it out and continued with my work"*, *"I definitely could not concentrate and I waited for the calm parts"* were typical responses.

To explore these experiences in more detail a questionnaire was designed. The questionnaire was to be completed immediately after the other two tasks in order to capture the subjective experiences of the music before they were forgotten. The questionnaire contained 6 questions, a mixture of closed and open-ended, enabling the participants to communicate their responses about the music. These are set out in Table 36.

1. Did you notice the piece of music that was playing in the background? 2 What affect did the music have on you? 3. What affect did the music have on your reading, was it affected and how? 4. Do you normally listen to music while you are studying? 5. Do you think that different piece of music would have a different affect, and how? 6. Do you think that you would have understood the task better if there was no music playing in the background?
TABLE 36 : Questions about the music

8.4.5 The music

The pieces of music had been rated for their arousing or calming effect in previous research (unpublished), by a similar group of students. The students had been given a range of different pieces of music and rated each on a 5 point rating scale as calming/relaxing or arousing/exciting. The two pieces selected for the study were rated at the extremes. They were the same as those used in the pilot study the "Sabre Dance" from Gayane, by Khachaturian and "Gymnopedies III and I" by Satie. The "Sabre Dance" has a very fast tempo, and is relentless in its intensity. "Gympopedies" is slow, quiet in comparison and has fewer notes in each musical phrase.

8.4.6 The sample

Thirty-nine (39) mature students, comprising the complete intake on to a postgraduate course in the psychology of education at a post-graduate Institute of Education took part in the study. They had been following the course for several weeks. This was the only criterion for selection: age, gender, English as a first language were not considered in the study.

8.4.7 The procedure

Students were randomly divided into three groups: one to listen to the arousing-stimulating music, the second the calming-relaxing music, and the third as the control group with no music playing in the background (see Table 36). In each group all the students completed the same logical reasoning task. Within each group students were allocated one of the three text understanding tasks. The groups that had background music playing were also given the questionnaire exploring their reactions to the music. Each student had to complete the logical reasoning test and read and answer the questions for one text only.

All students completed each task in the same order, the logical reasoning task, the text understanding task and the music questionnaire. The music was played from the time they were given the tasks, until everyone had completed all the tasks.

Each group was in a separate room on different floors of the building in order to avoid the distraction of music from other groups. They were told that they had as much time as they needed to complete the task.

	Arousing music	*calming music*	*no music*
easy text	5	3	5
difficult text	5	4	5
very difficult text	4	4	4
TOTAL	14	11	14

TABLE 37 : The population distribution in the experiment

8.5 Findings

When students had completed the tasks, the tests were marked. Responses were checked by two researchers working independently to ensure validity and reliability in marking. Section 8.6 will present the results for the Logical Reasoning Task, 8.7 the results for the text understanding, 8.8 the effects of the music in the text understanding, and 8.9 the music questionnaire.

8.6 The Logical Reasoning Task

The results for the logical reasoning task, were very similar to the pilot study. An analysis of variance revealed no significant differences between the three groups: the calming music the arousing music and the no music (control group) (F=2.238, df= 2, Sig=.121). The mean for the correct answers of the calming group was 12.91, for the arousing music group 12.14, and for the control group 10.57 (see Table 38). The standard deviation was larger for the arousing music group which may suggest that the arousing music had a more variable effect on task performance.

music playing in the background	MEAN	Std. Deviation	N
arousing music	12.14	3.32	14
calming music	12.91	2.12	11
no music-control	10.57	2.82	14
TOTAL	11.79	2.94	39

TABLE 38 : Results of the Logical Reasoning Task

8.7 Text understanding

Two independent judges assessed the students' responses to the questions about each text. Marks were awarded for understanding based on the students' summary of the main points and the title given. A further question assessed understanding of the author's purpose in writing the text. These qualitative measures were used to provide an assessment of understanding more nearly related to those adopted in higher education than multiple-choice statements. For each text the main points were identified and the two judges assessed each students' accuracy of response. There was no disagreement between the judges on the marks given. The remaining questions were designed to assess emotional response and will be discussed later.

8.7.1 The text understanding questions

8.7.1.1 What do you see as the main points in the text?

The main points to be delineated by the students in the first text were a definition of depression, symptoms and cure. The participants either referred to specific sentences of the text, for instance, '*women get depressed twice as often as men, and personality plays an important role. Depressed people should make contact with others and they should think about past experiences trying to find what brought them to this*', or they provided more concise statements, e.g. '*definition of depression and who it affects, highlighting the symptoms of depression, challenging traditional views of how to combat depression*'. Other statements were more complex, for instance, ' *depression is an illness and can happen to anyone, at any time. It tends to happen to women more. Experts believe there are real causes for depression. It is not definitely known why people get depressed-it can be due to early experiences or it can be biological. Depression leads to withdrawal from people and from every day activities*'.

Almost all of the titles given for the easy text included the word depression, for example, *'Depression: what is it?', 'Depression: fact or fiction', 'Depression: illness or self pity', 'The illness we call depression'.*

The independent judges gave one mark for each main point identified in the content of the text. Table 39 sets out the scores for the easy text.

main points	N	Percent (%)
0	1	8%
1	4	31%
2	2	15%
3	6	46%

TABLE 39 : Students responses for the main points of text I

The majority of the students (46%) reading the easy text were able to identify all three key elements of the text, 8% did not identify any main points, 31% identified one main point and 15% identified two main points.

Text II: In the moderately difficult text the main points were related to definition, meaning and symptoms. Example responses included:

'the main point of the text is to describe and discuss depression in its various forms as an aspect of an affective disorder'.

' Explaining what affect means in the context of mental disorders, show that depression is an affective disorder, explain what depression is'.

'To define depression the multiple meaning and the problem with defining depression (because of the use of the word in everyday life and the clinical definition)', 'definition of affective disorders and trying to explain the diverse form of depression'

For the moderately difficult text typical titles included *'What is Depression'*, *'Depression as an affective Disorder'*, *'Depression: a learner's guide'*, *'The truth behind depression'*. Table 40 gives a breakdown of the number of main points identified correctly for the moderately difficult text.

main points	N	Percent (%)
0	-	-
1	6	43%
2	5	36%
3	3	21%

TABLE 40 : Students responses for the main points of text II

Although the text was more difficult than the previous one the students overall performed better. No student failed to identify the main points of the text, 43% identified one main point, 36% identified two points and 21% identified all three points.

TEXT III: Students reading the very difficult text (article) needed to identify main points relating to the technique, the use of the technique, and its possible use for the future. The responses were qualitatively different to those of the other groups because of the difficulty of the text. Many expressed uncertainty: *'not sure, something about blood, depression and* *the brain. When looked at again brain imaging techniques and possible clinical use*'.

' *The use of MRI to establish differences in depressed/control patients. The use of MRI to show resting of BF during illness, and the links between BF and depression*'.

'*The major depressive disorders appear particularly tractable to functional imaging approaches aimed at elucidating their pathophysiology because they have been associated with descriptions of brain function in the absence of gross neuropathology*',

'*to give information about the technique, to evaluate the effectiveness of brain imagining techniques in the research of major depression, and to suggest further research for the future*'.

For the very difficult text the suggested titles varied from '*Brain imaging techniques: use in diagnosis and treatment of depression*', and '*The impact of brain imaging techniques on major depressive disorders*', to '*Anatomical correlates of Depression*', and '*Research into depression*'.

Table 41 sets out the number of main points identified in the difficult text.

main points	**N**	**Percent (%)**
0	2	17%
1	2	17%
2	7	58%
3	1	8%

main points	N	Percent (%)
TABLE 41: Students responses for the main points of text III.		

The majority of students reading the very difficult text found two main points (58%), 17% found one and 17% found none. Only one student identified all three points of the text.

8.7.1.2 What do you think the author was trying to achieve in writing the text?

Another way of assessing the students' understanding of the text was to explore their perceptions of what the author was trying to achieve in writing the text. The majority of students who read the easy text said that the author was trying to inform the reader about depression: '*to inform someone about depression and its effects on people*', '*to describe depression from the point of the role of depression in man's life*', '*I think he was trying to educate people about the nature of depression, in contrast to common 'myths' about it*'. Other students went beyond this: '*the author was trying to help others understand depression in order to aid them in dealing with it when and if they need to*', '*the author was trying to help people reduce the causes of depression*', '*get people to take depression more seriously. That it is an illness and that although personality/ experience may be important variables, it can affect anyone anytime*'.

The percentage of students identifying the author's intention are given in the next table. All of the students except one who did not respond provided responses which indicated that they had understood the author's intention in writing the article.

Author's intention	N	Percent
inform about depression	9/13	69%
information and help about depression	1/13	8%
help decrease causes of depression	1/13	8%
show affect of depression	1/13	8%
Nothing	1/13	8%
TABLE 42 : Author's intention in text I		

Text II. For the moderately difficult text, all students suggested that the author was trying to clarify the nature of depression: '*The author was trying to distinguish the word 'depression' from others*', '*the author was trying to clear the confusion surrounding depression. Establish the different types of uses for depression the word thereby enabling one to see clinical depression as it's meant to be seen*', '*the author was trying to give the reader an understanding of what depression is and the problems surrounding the many definitions*', '*to give/present an understanding that the description 'depression' is subject to misunderstanding or in need of further explanation in context*'.

In this group all the students responded in a manner indicating that they had understood the author's intention.

Text III. The most difficult text was more confusing for the students. Despite this most provided responses which indicated a high level of understanding of the authors intentions: '*to identify localized specific brain regions to aid understanding of depression*', '*explaining depressive disorder in relation to bloodflow (metabolism activities) and how this can be controlled*', '*to confuse students taking part in the experiment! And to promote the use of brain imaging techniques and further research*', '*trying to see what similarities could be found in depression and sadness that healthy people can feel on occasions. Differences in BF and glicone metabolism in the brain on evidence*', '*the author was trying to examine the data and the principles relevant to their interpretations and discusses the insights they provide into the anatomical correlates of depression*'.

The following table gives the percentages of students indicating that they had understood the author's intentions.

Author's intention	**N**	**Percent**
inform about the technique	9/12	75%
anatomic elements of depression	1/12	8%
Nothing	1/12	8%
review of research	1/12	8%

TABLE 43 : Author's intention in text III

8.7.2 Affective reactions to the text

8.7.2.1Report anything you disagree with in the text and say why.

The questions about disagreement or surprise at the content of the text were designed to assess whether the type of music being played in the background impacted on emotions and subsequent reactions to the content of the text.

Text I. Some students who read the easy text, disagreed with the statement that 'women are twice more affected than men by depression', others disagreed with the last two lines of the text : '*when your current problems are resolved, you may have better understanding of your needs and of the importance of looking after your health. You may even decide it's time to re-assess your life and your priorities'*. One student said '*I disagree that the most helpful reaction to depression is to spend more time with people. Sometimes it is necessary to be alone and to enter into depression in order to come out of it*'. The majority of students found nothing to disagree with. Table 44 sets out the level of disagreement.

Disagree with:	**N**	**Percent**
the last two sentences	4/13	31%
science's invest on this field	1/13	8%
causes of Depression	2/13	15%
women twice affected	1/13	8%

Disagree with:	N	Percent
Nothing	5/13	38%
TABLE 44 : Disagreement with content of text I		

Text II. Students reading the second text overall disagreed with little. Two points made were: '*Affect is not necessary disconnected from cognition. A patient could be aware of having affective disorders*', '*mania and depression are considered together because they occur in the same individual at different times, or together*'.

Table 45 sets out the overall levels of disagreement with text 2.

Disagree with:	N	Percent
Nothing	12/14	86%
affect-cognition	1/14	7%
mania-depression	1/14	7%
TABLE 45 : Disagree with content of text II		

Text III. The third text, which was the most difficult led to the some comments about text difficulty in addition to disagreement. '*I can't absorb the information, so I can't disagree with it*'. '*I disagree with the last sentence which says that none of these abnormalities has been shown to the sensitively and specifically distinguished individual depressives from healthy subjects and from subjects who have other illnesses*', '*experimental produced*

sadness/anxiety can in no way replicate long term depression, causes and consequences'.
Overall levels of disagreement are reported in Table 46.

Disagree with:	N	Percent
Nothing	7/12	58%
last sentence	2/12	17%
experimental investigation	1/12	8%
can't absorb the information	2/12	17%

TABLE 46 : Disagreement with content of text III

8.7.2.2 What, if anything, surprised you in the text? Why?

Text I. The response "nothing" was the most frequent answer to this question. Some participants expressed surprise as outlined below: '*I was surprised that women are twice affected than men*', '*I was surprised that depression can occur in all age groups*', '*it slightly surprised me that depression can have such physical manifestation as I had always considered it to be a mental state: the link between psyche and some is very strong*'. Table 47 shows overall levels of surprise.

Surprise with the text	N	Percent
nothing	6/13	46%
physical manifestation of depression	2/13	15%

Surprise with the text	N	Percent
women twice affected as men	3/13	23%
information related with depression	1/13	8%
harm caused by depression	1/13	8%
TABLE 47 : Surprised with content of text I		

Text II. Most students found nothing surprising in the second text. There were some exceptions: '*I was surprised by the fact that the word depression can be used in so many ways*','*typical depressions are identical it did not seem to make sense*', '*the suggestion that melancholia could be used to describe depression*', '*in mania irritability as well as euphoria predominates. I did not know that*'.

Table 48 sets out overall levels of surprise.

Surprise with the text	N	Percent
Nothing	7/14	50%
use of the word depression	2/14	14%
typical depressions are identical	1/14	7%
harm of depression	1/14	7%
melancholia is not depression	1/14	7%

Surprise with the text	N	Percent
depression is a disease	2/14	14%
TABLE 48 : Surprised with content of text II		

Text III. The students reading the third and most difficult text expressed surprise at: '*The fact that the difference between healthy and depressed is small*', ' *I thought that depressive disorder was not affected or was not associated with disruptions of brain functions and this text showed the opposite of what I believed*'. ' *I was surprised the MRI could detect abnormal metabolic activities. I thought it detected abnormalities in bones and other tissues. How was this research on humans carried out?*' ' *I was surprised that there are small differences between depression and controls*'. '*surprised by the complex language and they could not absorb the information*'.

The overall levels of surprise for text III are set out in Table 49.

Surprise with the text	N	Percent
nothing	4/12	33%
healthy and depressed are not distant	2/12	17%
complex language	2/12	17%
brain symptoms	1/12	8%
depression-control	1/12	8%

Surprise with the text	N	Percent
MRI properties	1/12	8%
Depression is so common	1/12	8%
TABLE 49 : Surprised with content of text III		

8.8 EFFECTS OF MUSIC

8.8.1 Effects of music on students' understanding

In this section the questions regarding text understanding will be re-examined in relation to the kind of music the students were listening to, in order to explore whether there were differences between them.

8.8.1.1 Main points of the text

TEXT I: The main points of the easy text were definition of depression, symptoms and cure. 40% of the participants in the no music group and the arousing music group identified all three main points. In the calming music group 66% identified all three key points. This suggests that the group with the calming music did better than the other groups. However, the numbers of respondents were very small so it is difficult to draw definite conclusions.

points	Number of students in the arousing	Number of students in the calming	Number of students in the no music
0	-	1 (33%)	-
1	2 (40%)	-	2 (40%)
2	1 (20%)	-	1(20%)
3	2 (40%)	2 (66%)	2 (40%)
TABLE 50 :Main points for text I within each group			

TEXT II : For the second text, one student from each group found all three main points of the text. The majority identified one or two main points in the text: in the group with the arousing music 60% identified two out of the three main points, and 20% only one, while in the group with the calming music 50% found one point and 25% found two. In the control group 60% found one main point and 20% found two points. The table below shows the number of students in each group and the frequency. It shows that 80% of students in the arousing group found two or three main points, 50% of the calming group and 40% of the control group.

points	Number of students in the arousing	Number of students in the calming	Number of students in the control
0	-	-	-
1	1 (20%)	2 (50%)	3 (60%)
2	3 (60%)	1 (25%)	1 (20%)
3	1 (20%)	1 (25%)	1 (20%)
TABLE 51 :Main points for text II within each group			

TEXT III: The third and most difficult text seemed to have been undertaken more successfully by the group with no music playing in the background. 75% of the participants identified two main points and 25% identified all three points. The arousing music group identified either one (25%) or two main points (75%). The calming music group identified no points (50%), one point (25%), or two points (another 25%). In this condition the no music group performed better.

points	Number of students in the arousing	Number of students in the calming	Number of students in the control
0	-	2 (50%)	-
1	1 (25%)	1 (25%)	-
2	3 (75%)	1 (25%)	3 (75%)
3	-	-	1 (25%)

TABLE 52 :Main points for text III within each group

Number of points outlined	arousing music				calming music				no music			
	ET	DT	VDT	TT	ET	DT	VDT	TT	ET	DT	VDT	TT
0	0	0	0	**0**	1	0	2	**3**	0	0	0	**0**
1	2	1	1	**4**	0	2	1	**3**	2	3	0	**5**
2	1	3	3	**7**	0	1	1	**2**	1	1	3	**5**
3	2	1	0	**3**	2	1	0	**3**	2	1	1	**4**

ET=Easy Text, DT= Difficult Text, VDT= Very Difficult Text, TT= Total

TABLE 53 : Summary of students' responses on the main points of each text

The table above shows the students' responses overall. There is no clear overall pattern of results. An analysis of variance was undertaken on the number of correct main points made in relation to each text and each music condition. There were no significant differences in relation to the difficulty of the text (F=.496, DF=2, Sig.=.61), or the type of music (F=1.77, DF=2, Sig=.36). Also, there were no significant interactions between text difficulty and music type (F=1.72, DF=4, Sig=.17).

8.8.1.2 Author's intention

Text I. In the arousing music group, 80% of the participants indicated that the author was trying to inform the reader about depression, the remainder indicated that the author was trying to inform and offer help. All participants in the group with the calming music said that "s/he was trying to inform about depression". In the group with no background music the responses varied: two said that s/he was trying to inform about depression, one that s/he was trying to help decrease the causes of depression, one that s/he was trying to clarify the affect of depression. One made no response. Table 54 gives the details.

arousing	**calming**	**control**
4/5 inform	3/3 inform about depression	2/5 inform about Depression
1/5 inform about depression and offer help		1/5 help decrease causes of Depression
		1/5 affects of Depression
		1/5 nothing

TABLE 54 : Author's achievement in Text I for each group

Text II. All students in all groups said that the author was trying to clarify issues about depression (14/14).

Text III. Students listening to arousing music said that the author of the very difficult text was trying to inform about the particular techniques (3/4). One reported the author wished to inform about the anatomic elements of depression. Those in the calming music group said that the author was trying to inform about the techniques (3/4). One did not respond. Three out of five in the none music group said that the author was trying to inform the reader about techniques, the other respondent indicated that the author was intending to review the research. Table 55 gives details of responses in the three conditions. The music had no effect.

arousing	calming	Control
3/4 inform about the technique	3/4 inform about the technologies	3/4 inform about the technology
1/4 anatomic elements of Depression	1/4 nothing	1/4 review of research

TABLE 55 : Author's achievement in Text III for each group

8.8.1.3 Disagreement with the text

Text I. Of the students who listened to the arousing music and read the easy text, 3 disagreed with the last two sentences and one with the issue of scientific investment. One demonstrated no disagreement. Of those listening to the calming music, 2 out of 3 believed that there was nothing to disagree with and one disagreed with the statement that "women are twice as greatly affected as men". Of the non music group 2 out of five found nothing to disagree with, one disagreed with the last two sentences and two disagreed with the causes of depression stated by the author.

arousing	calming	control
3/5 last sentences	2/3 nothing	1/5 last sentences
1/5 scientific invest	1/3 women more than men	2/5 causes of Depression
1/5 nothing		2/5 nothing
TABLE 56 : Text I disagreement with the text for each group		

Text II. Students reading the moderately difficult text generally found nothing to disagree with. Four out of five in the arousing music group fell into this category. The single dissenter claimed that "affect is not necessarily disconnected from cognition, but the patient may be aware of their depression". None listening to the calming music disagreed. Four out of five in the no music group reported no areas of disagreement. One indicated disagreement with the statement that mania and depression are close.

arousing	calming	control
4/5 nothing	4/4 nothing	4/5 nothing
1/5 affect-cognition		mania-depression
TABLE 57 : Text II disagreement with the text for each group		

Text III. Of the students who read the very difficult text and listened to the arousing music two claimed that they could not absorb the information so they could not disagree with it, the rest disagreed with the last sentence. In the calming music group only one disagreed related to the issue of experimental investigation. In the no music group there was no disagreement with the text.

arousing	calming	control
2/4 last sentence	3/4 nothing	4/4 nothing
2/4 can't absorb the information	1/4 experimental investigation	

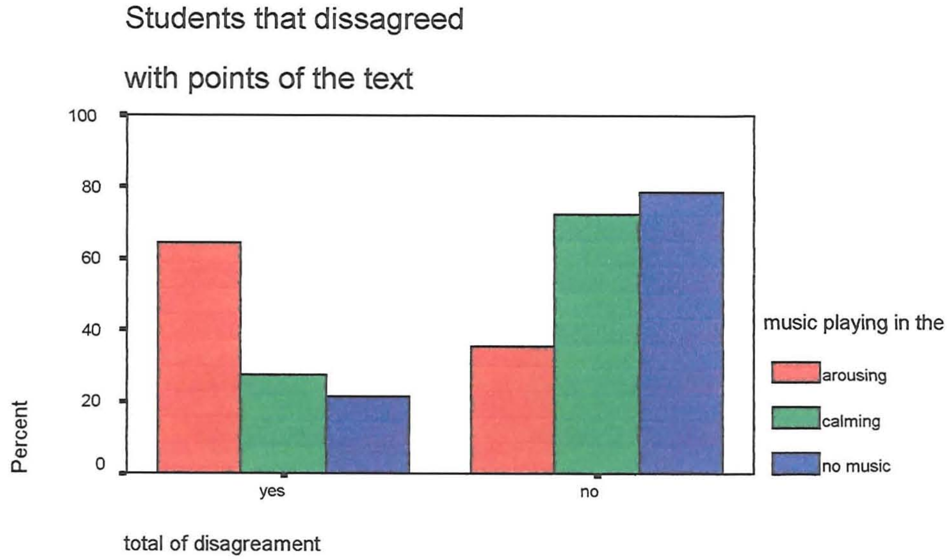
TABLE 58 : Text III disagreement with the text for each group

Table 59 shows the overall levels of disagreement with the text. There was considerable difference between texts. This was to be expected given that the texts were not identical in content. When disagreement was examined in relation to the type of background music, there was greater disagreement from those listening to the arousing music. The least disagreement was reported in the calming music group. However, these findings were not statistically significant (x^2=4.274, DF=2, p =.112).

	arousing music	calming music	No music	Total
Yes	8 (57%)	3 (27%)	3 (21%)	15 (38%)
No	6 (43%)	8 (73%)	11 (79%)	24 (62%)
Total	14	11	14	39
x^2=4.274, DF=2, Sig=.112				

TABLE 59 : Number and percentages where there was disagreement with the texts

Figure 164



8.8.1.4 Surprise with the text

Text I. In the group with arousing music 2 did not report surprise with the content of the text, two said that they were surprised with the physical manifestation of depression, one reported surprise that "*women are twice as much affected as men*". In the group listening to calming music one reported "*nothing*" and the remaining two were surprised with the statement that "*women are twice as much affected as men*". In the no music group three out of five were surprised by nothing, one was surprised with the information related to depression, and the other with the harm caused by depression.

arousing	**calming**	**control**
2/5 nothing	1/3 nothing	3/5 nothing
2/5 physical manifestation of Depression	2/3 women twice affected than men	1/5 information related with Depression
1/5 women twice affected		1/5 harm caused by

arousing	calming	control
than men		Depression
TABLE 60 : Text I surprise with something in the text for each group		

Text II. Students reading the moderately difficult text and listening to arousing music were surprised by the use of the word depression (1/5) and the fact that typical depressions are identical (1/5). Three expressed no surprise. In the group listening to the calming music each participant expressed surprise at different aspects: one with the harm caused by depression; one with the fact that depression and melancholia are different; one that depression is a disease. One found nothing surprising. Comparatively, the participants of the group with no music, found nothing surprising (3/5). One found the use of the word depression surprising and that depression is a disease.

arousing	calming	control
3/5 nothing	1/4 nothing	3/5 nothing
1/5 use of word Depression	1/4 harm of Depression	1/5 use of the word Depression
1/5 typical Depression is identical	1/4 melancholia different from Depression	1/5 Depression is a disease
	1/4 Depression is a disease	
TABLE 61 : Text II surprise with something in the text for each group		

Text III. In the arousing music group, two out of four found surprising the author's statement that the difference between healthy and depressed was very small, one with the brain symptoms of depression, and one the use of such complex language. Those in the calming music group gave detailed accounts of their level of surprise. One was surprised with differences between depression controls, one with the use of MRI, one with the fact that everyone can be effected by depression. One found nothing surprising. Three out of five in the no music group said that they disagreed with nothing, one was surprised at the complexity of the language.

arousing	calming	control
2/4 healthy-depressed not distant	1/4 nothing	3/4 nothing
1/4 complex language	1/4 depression-control	1/4 complex language
¼ brain symptoms	1/4 MRI properties	
	1/4 Depression is common	

TABLE 62 : Text III surprise with something in the text for each group

When the element of surprise was examined across all the groups in relation to the background music most surprise was exhibited in the arousing music group. The calming and the control group evoked the least response. These differences were not statistically significant (x^2=3.983, DF=2, Sig=.136). Table 63 gives the details.

	arousing music	calming music	no music	Total
Yes	9 (64%)	3 (27%)	3 (21%)	15 (38%)
No	5 (35%)	8 (73%)	11 (79%)	24 (62%)
Total	14	11	14	39

	arousing music	calming music	no music	Total
x^2=3.983, DF=2, Sig=.136				
TABLE 63 : Number and percentages where there was surprise with the text				

8.9 The questionnaire: Students reports of the music playing in the background

Observation at the time of the study, suggested that the students were treating the task seriously, concentrating on their reading, thinking and answering the questions. The students in the group with the arousing music were observed trying to block out the music by covering their ears, by turning and looking at the CD player, and waiting for the calmer parts of the music before continuing to write.

In this section, the questionnaire responses will be analysed, in order to supplement these observations. The questions asked if the students noticed the music playing in the background, what effect the music had on them, how the music affected their reading, if they normally listened to music while studying, whether they believed that a different piece of music would have had a different affect, and whether they thought that they would have performed the tasks better if there was no music playing in the background.

All the students (100%) reported that they noticed that there was music playing in the background. The effect that music had on them varied relating to the music that was playing, and their habit of listening to music while studying generally. 32 % said that the music was annoying, disruptive, irritating , 52% claimed that they could not concentrate (92% of whom were listening to the arousing music), 20% said that they found it hard to concentrate because they participated by singing, tapping their feet, etc.

Generally, the group with the arousing music playing said that they wanted it to be turned off, that it was too disrupting, that they re-read many parts of the task, and that they were waiting for the calm parts to complete their work. The group with the calming music found it relaxing. They liked what they were listening to, and it was easy to carry on with their work. The following table shows their responses and the percentages for each group.

What affect had the music on you?	**arousing group N=14**	**calming group N=11**
It made me nervous/annoyed, irritated	4 (29%)	4 (36%)
I wanted to participate	2 (14%)	3 (27%)
I could not concentrate	12 (86%)	1 (9%)
The music made me hurry	1 (7%)	
I wanted to turn it off	2 (14%)	
I had to re-read	3 (21%)	
It was too exciting	1 (7%)	
I worked in the calm parts	2 (14%)	

I felt relaxed-calmed		4 (36%)
I was not affected by the music		2 (18%)
I blocked the music out		1 (9%)
I liked it, enjoyed it		3 (27%)
TABLE 64 :Perceived effects of the music		

When they were asked if their reading was affected and how, 92% of the whole sample said that their reading was affected. The reasons reported by the students varied. They included: hard to concentrate (28%), could not understand the text (16%), focused on the music (16%), re-read parts (16%), blocked the music out (12%).They also said that they read aloud and were waiting for the calmer parts of the arousing music to continue working. Students responses are set out in Table 65.

perceived effect of music on reading	**Arousing group N=14**	**calming group N=11**
The music had no perceived effect	1 (7%)	1 (9%)
The music had a perceived effect	13 (93%)	10 (90%)
The music affected concentration	5 (36%)	2 (18%)
I could not understand	3 (21%)	1 (9%)
I focused on music	2 (14%)	2 (18%)
I read aloud	1 (7%)	

I worked in the calm parts of the music	2 (14%)	
I re-read the material	2 (14%)	2 (18%)
I participated in the music	1 (7%)	
I blocked it out	1 (7%)	2 (18%)
The volume affected me	1 (7%)	
The music was disruptive		2 (18%)

TABLE 65 : Perceived effects of music on reading

When they were asked if they normally listened to music while they are studying only 20% said that they did. 20% said that they sometimes did, and 60% that they do not listen to music while they are studying. This contrasts with findings from Kotsopoulou (1997) which found that 63% of students reported listening to music while they were studying.

study with music	arousing	Calming	total percent
Yes	2	3	20%
no	8	7	60%
sometimes	4	1	20%

TABLE 66 :Frequency of normally studying with the music
These differences were not statistically significant

The majority of them, (92%) believed that a different piece of music would have had a different affect. Only 8% disagreed. 36% would have preferred slow, quiet, softer music and 24% would have preferred the volume to be lower. Table 67 sets out students responses.

Different kind of music and its effects	**Arousing music N=14**	**calming music N=11**	**total percent**
Preference for different music	12 (86%)	11 (100%)	92%
No preference for different music	2 (14%)		8%
Harder with rave music	1 (7%)		4%
Depends on mood	1 (7%)	1 (9%)	8%
Slower-quieter-softer	9 (64%)		36%
More familiar	1 (7%)	1 (9%)	8%
Classical	2 (14%)		8%
Pop/heavy metal, no concentration		1 (9%)	4%
Not songs		2 (18%)	8%
Unfamiliar/block out easily		2 (18%)	8%
Lower volume	3 (21%)	3 (27%)	24%

TABLE 67 :Preference for listening to other kinds of music while studying and the possible effects

Most of the participants reported that they would have preferred a different type of music. Small proportions reported difficulties that they felt they would experience with other musical genres. 64% of those in the exciting music group reported that they would prefer slower, quieter and softer music. Some students said that they would not concentrate with music like rave, pop, heavy metal, and others said that it depended on their mood. Some (12%) claimed that it would be easier with music that they were familiar with, but others (12%) said that they would prefer unfamiliar music because it would be easier to block out. Some (12%) said that working with songs in the background would be difficult and others that they would prefer classical music. This response is surprising taking into account that the pieces that were chosen were both 'classical' implying that students may not have a clear conception of 'classical' music.

When asked if their understanding of the text would have been greater with no music, 86% of the arousing music group agreed. This contrasted with 55% of the calming music group (see Table 68).

No music -better understanding	**arousing**	**calming**	**total percent**
No	1 (7%)	4 (36%)	20%
Yes	12 (86%)	6 (55%)	76%
Maybe	1 (7%)	1 (9%)	8%

TABLE 68: Perception of whether understanding of text would have been greater with no music
These differences were not statistically significant

8.10 Summary of findings

The analysis of the results showed that there were no statistically significant differences between students listening to calming music, arousing music, or the control group as far as performance on the logical reasoning task was concerned. A similar pattern was found in relation to the text understanding task although the realistic nature of the task and the relatively small sample made it difficult to draw firm conclusions. The findings suggest that adults, while they are affected by music can utilise their metacognitive skills in order to ensure that there are no deleterious effects on their performance. In the logical reasoning task and the realistic reading task there were no differences in performance between the three groups. But the adults did report that the music disrupted their concentration. This was particularly marked in the group with the arousing music playing in the background. They also suggested that if the music had been quieter and slower they would have been able to concentrate better.

Most of the students in the sample reported not listening to music when they studied in normal conditions. This contrasts markedly with the reported 63% of students who worked with music playing in the background in an earlier study (Kotsopoulou, 1997). Most of the students reported that they would have preferred 'different' music to be playing although their suggestions were varied. There were differences in the degree of disagreement and surprise reported by the different groups, although these were not statistically significant. There was a tendency for there to be more disagreement with and surprise at the text in the arousing music condition. This suggests that the music may be affecting mood which in turn affects cognitive. This is worthy of more in depth analysis.

Overall this study did not show that music had an effect on the task performance of post-graduate students, although there were reported differences in awareness of the music. All of the students in the music groups were aware of the music, those in the arousing music said that they felt uncomfortable, and those with the calming music that they were very relaxed and they enjoyed it. In fact, whether they enjoyed the music playing in the background or not, their performance on both tasks was not affected. There may be several reasons for this. Firstly, it may simply be that music does not have an effect on the cognitive performance of adults. While their verbal reports suggest an awareness of the music and its effects on mood and arousal this may not interfere with cognitive processing. An alternative explanation is that it may potentially have an affect but this is mediated by the metacognitive strategies of the listener. The effects, in contrast to earlier work with children (Hallam and Price, 1998; Hallam and Katsarou ,1998; Hallam and Goodwin, 2000), suggest that the adults have sufficiently well developed metacognitive skills to overcome the distractions of the music. Children do not. Music which is perceived as arousing appears to have the potential to disrupt concentration. While adults appear to be able to overcome the disruptive effects of music, the metacognitive effects may be restricted to the management of behaviour. The underlying mood changes may remain and may emerge in relation to emotional reactions to the task, as evidence by the differences in surprise and disagreement between the groups experiencing different types of music. This finding although not significant is of interest and requires exploration with a larger sample. There were no significant differences in relation to the performance of the students on the tasks of different difficulty in interaction with the calming and arousing music. This was unexpected. The Yerkes Dodson law would predict that the arousing music combined with the most difficult task would have increased arousal to such a level that performance would have deteriorated. The reasons for not finding this effect may have been due to the small sample size which led to some very small cell sizes, because the tasks were insufficiently differentiated or because all of the tasks involved similar cognitive activity, albeit at different levels. Previous research has tended to focus on tasks, which have been different in nature. This is an issue where further research is indicated.

CHAPTER 9

DISCUSSION

CHAPTER 9: DISCUSSION

9.1 Summary of the findings

This research suggests that while there are cultural, age and gender differences in reported listening to music in everyday life and when studying there are fewer differences relating to students' involvement with music. Overall, Japanese students reported listening to music less than their Greek, UK and USA counterparts; older students tended to listen more to music than younger; and females reported listening to music more often than their male counterparts. Overall, music was reported to be used to accompany studying tasks, which involved generative activities rather than reading, memorising or revising. The reasons given for playing music in the background varied but tended to relate to emotional and arousal factors, e.g. to relieve boredom, provide company, or assist in relaxation.

While the students' reports indicated that they perceived there could be beneficial effects of playing background music while studying, the evidence from the empirical study indicated no effects of different kinds of music on performance as compared with silence, although the students' reported experiences of the music as calming or irritating differed considerably. In the next sections these findings will be considered in more detail and discussed in relation to the literature.

9.2 Cultural difference

Earlier studies have indicated that many students at secondary school and later at college and university listen to music while they are studying (Miller, 1945, Kotsopoulou, 1997). Research has also shown that music can have a beneficial effect on studying (Hall, 1952; Hallam and Price, 1998; Hallam & Katsarou, 1998). However, these studies were largely carried out in controlled conditions and did not explore the effects or use of music on private, independent study. There has been little research, which has systematically explored cultural, age, gender or musical experience differences in relation to listening to background music while studying. Those studies, which have considered cultural differences have focussed on black and white Americans (Denisoff and Levine, 1972, and Dixon, 1982).

The research reported here explored the musical listening habits of four different nationalities with particular reference to the way music constituted a part of their studying environment. The findings indicated that there were cultural differences in listening to music in everyday life which extended to music while studying. The most common time overall for listening to music was while travelling. This was followed by listening to music at home in the evening, while eating and then at home in the morning. In all of these situations, the Japanese listened to music the least. In most of them the Greeks listened most, although the American students reported listening the most when waking up, in the morning and when going to sleep.

There were cultural differences in the types of music listened to but some commonalties. Most students listened to songs that they knew and their favourite music. Overwhelmingly, for all nationalities, the most favoured music was some form of popular music. In the UK, pop or soul, in the USA and Greece pop and rock and in Japan, pop, new music and TV music themes. Students rarely listened to classical or country music.

There were overall differences in the extent to which music was listened to while studying. Reflecting the findings outlined above the Japanese students listened to music the least while studying. There were also reported differences in relation to particular tasks. Students reported listening the most when they were undertaking tasks which required thinking, writing, developing ideas and doing coursework and the least when they were memorising texts and revising for examinations. The main reported reasons given for listening to music while studying were that it aided relaxation, alleviated boredom and provided company. Most students reported that they would turn off the music if they were unable to concentrate and their learning was being affected negatively.

What can we learn from these findings? Firstly, we should not assume that patterns of listening to music are universal. Findings regarding listening to music may not transfer from one culture to another even within the developed world. The differences in listening to music while undertaking other activities and at different times of day may reflect cultural differences in life style patterns developed at an early age through enculturation. Listening to music while undertaking certain activities may form part of this enculturation process. Respondents were not asked for information about the detailed activities being undertaken at home during morning or evening when they might be listening but there is evidence from Sloboda (1999) that music often accompanies domestic tasks, relaxing and studying.

Cultural differences in listening to music in everyday life may not be limited to listening habits but may extend to the processing of music. Recent research on the brain has reported that skilled readers in Italian and skilled readers in English have different patterns of brain activation during reading. This is explained in relation to English relying more heavily on semantics because of the existence of irregular words, which need to be identified before they can be pronounced. The English readers engaged more brain areas associated with word identity rather than sound–letter decoding. The conclusion was that culture, as manifested, in this case by the acquisition of orthographic systems, permanently affects brain physiology. Thus different brains are built in different cultures (Paulesu et al., 2000).

There seemed to be particular times when listening to music was common, at least for students. Travelling was one of these. The questionnaire did not specify the nature of travel, by car, coach, train, etc. nor whether listening was restricted to travelling alone. This is a relatively unexplored area, although Oblad (2000) has recently reported that many people have strong musical experiences while driving in part because of the privacy it affords. There is also some evidence that moderate intensity music may improve driving (Beh and Hirst, 1999).

The evidence from the questionnaires suggested that music was perceived to interfere more with learning than generative tasks. Memorising and revising were reported to be less often undertaken with background music playing than problem solving, writing, thinking, etc. The existing experimental research evidence neither supports or refutes the accuracy of these perceptions. Research on the effects of music on memory has had mixed results, in part because the research has utilised different memory tasks and not all of it has specified the nature of the music which has been played. Hallam and Katsarou, (1998) found that children's memory for missing words in sentences presented visually was improved when accompanied by calming music and disrupted when accompanied by arousing, aggressive music. Nittono (1997) found that music played forward disrupted recall of visually presented digits but not music played backwards. Salame and Baddeley (1989) and Boyle and Coltheart (1996) found that vocal music caused more disruption to a serial digit recall task than instrumental music, but the effects of instrumental music were inconsistent. The effects of music on generative tasks have rarely been studied and where they have (e.g. Godwin, 1999) comparisons have not been made with memorisation tasks.

The main reported reasons given for listening to music while studying were that it aided relaxation, alleviated boredom and provided company. In part, this supports earlier research on homework where students reported that music, the radio or TV provided companionship, helped overcome the loneliness of doing homework, and increased concentration either because if shut out other distractions or 'built a wall of sound' behind which they were able to retreat (MacBeath and Turner, 1990). Taken together, these findings suggest that playing music in the background while studying has an affect on arousal levels. Music can be used to increase arousal or reduce it. This does not preclude the possibility that the complexity of the music being played may be an important factor in determining the extent to which the music is able to calm or arouse. There may be individual differences in the extent to which students perceive a need to be aroused or calmed. These may be related to relatively stable personality characteristics, e.g. extroversion/introversion (Christodoulides, 1997); variations occurring during arousal cycles related to time of day and those relating to current mood and arousal states generated by particular environmental circumstances.

Most students listened to familiar music and music that they liked, usually popular music whatever their culture. These factors are closely interrelated. The easy availability of popular music on radio, TV and in recordings and the extent to which young people listen to it (see North et al., 2000) means that it is very familiar. Theories and research which relate liking and familiarity indicate that there are positive relationships between the two, which are mediated by cognitive complexity (see North and Hargreaves, 1997). There is an inverted U shaped curve relating familiarity and liking. As something becomes more familiar we like it more up to a point after which our liking deteriorates. The more complex the music the longer our tolerance lasts.

Most students reported that they would turn off the music if they were unable to concentrate and their learning was being affected negatively. This reported awareness of the effects of music on studying contrasts sharply with findings relating to primary school children who were unaware of the negative effects that music had on their task performance (Godwin, 1999).

9.3 Age differences

Overall, there was an increase in listening to music in everyday life as the students became older. There were two exceptions to this. Listening at home in the evening decreased, probably reflecting changes in social life as students leave school and go to university. The other exception was listening to music while travelling which remained high across the age range. Consistent with this increase in listening to music in everyday life were increases in listening to music while studying with increased age. There were few significant differences in reports of the kind of studying which was accompanied by music. Revising and undertaking coursework were the exceptions. These differences may reflect changes in assessment demands as students move through school to university.

There were also changes in the type of music which was listened to. The youngest and eldest students appeared to listen to a much wider range of music than the 15 and 16 year olds. This may be linked to the role of music in developing adolescent identity (Frith, 1981; North et al., 2000). Age 15-16 is likely to represent a point across nationalities where identity development is crucial to young people. It is also possible that the nature of the sample was a factor. Students who continue their studies to university level may have wider musical listening tastes than the broader school population. Factors in relation to musical cognitive complexity may also play a part. North and Hargreaves (1995) demonstrated that the effects of familiarity/acculturation interacted with the complexity of the music. Students' liking ratings peaked at an earlier age for comparatively simple styles, e.g. rock and pop than for more complex styles, e.g. jazz and classical music. Complex music was able to sustain greater exposure before tolerance for it declined. These factors may have all contributed to the observed differences in breadth of music listened to by each age group.

There were few age related changes in perceptions of the effects of music. The older students acknowledged that music was likely to relax them and also indicated that they would turn the music off if it was interfering with their concentration or learning. This latter suggests increasing responsibility in relation to their learning. The 15 and 16 year olds were more likely to report that listening to music depended on the subject they were studying. This might reflect a need to use music to raise concentration in subjects where they had less interest, as at this age they would be following a broad curriculum not having had the opportunity to exercise much choice.

9.4 Gender differences

In comparison with the cultural differences there were relatively few gender differences. Overall, the female participants reported listening to music more than the males in their everyday activities and while studying. This reflects the already well established positive attitudes of girls towards music and their greater involvement in music making activities (Crowther and Durkin, 1982; Eccles, et al. 1993; Colley et al., 1994). The playing of music while studying showed a similar pattern, although female respondents indicated that they listened while writing more than males. The type of music listened to differed. Female respondents preferred the music playing while they were studying to be more relaxing, slow music, classical and easy listening music. The exception was dance music. In contrast the male respondents preferred listening to rock music and music perceived as arousing while they were studying. These differences may be related to socialisation processes and the different expectations of male and female. Musical cultures themselves constitute part of the socialisation environment and so play a role in shaping social attitudes and behaviour (Hansen and Hansen, 1991). These findings complement previous research. Abeles (1980), Christenson and Paterson (1988) and Finnas (1989) found that males were more likely than females to prefer music described as ‘hard’ or ‘tough’ while females were more likely to prefer music which was ‘softer’ and more romantic. This is further supported by recent research by North et al. (2000) who found that music served an important role in creating an impression with peers. While females reported that music could be used as a means of regulating mood, males reported that music could be used as a means of creating an impression with others. While it is difficult to see how listening to music alone while studying can be important in creating an impression on others, the findings of this research and that of North et al. (2000) suggest that this may be a factor. Female listening was more likely to depend on the mood they were in again supporting the earlier research indicating that females tend to view music as a means of mood regulation (North et al., 2000; DeNora, 2000).

Female respondents were also more likely than the males to turn the music off if they felt it was interfering with their concentration while working. This may reflect the greater conscientiousness of females in relation to their studying, a phenomenon which has been verified by numerous research projects (for a review see Hallam and Cowan, 1998).

9.5 Musical involvement

The research showed that there were significant nationality differences in the extent of active involvement in music. The Japanese were the most actively involved in making music while the Greeks were the least. This was the reverse to the extent of listening to music in everyday life and while studying. Overall, there were few differences in relation to listening to music between those who were actively involved in music making and those who were not. Those with an active involvement listened to music less often while eating or while in the bath but these differences may merely reflect nationality differences in both. There were no differences in the extent to which music was listened to while studying. Those actively involved in music indicated listening to more calming music while studying, their favourite music and a wider range of different types of music. They indicated that the type of music was important in their decision to have music playing and that music helped them to learn faster. Together these findings suggest that active involvement in music making does not affect the amount of music listened to but may affect its nature and variety. Those actively involved in music making access a broader range of music and appear to be more discriminating in their choice of music.

9.6 Actual effects of music

While a survey can establish individuals' perceptions of the effects of music on their behaviour and studying, it has limitations in relation to establishing the actual effects. The experimental study was designed to explore the actual effects of two contrasting types of music selected on the basis of their arousing or calming effects on two contrasting tasks. The results showed that the music had no significant effects on task performance, although the participants reported substantial interference effects from the arousing music. At face value this seems to contradict the findings from the survey where students reported music as being supportive of or detrimental to their studying to the extent that they turned it on or off depending on circumstance. This may imply a lack of awareness of the actual effects of music or, as would seem to be the case, the lack of them or imply that the students taking part in the experiment were adopting a range of strategies to overcome the effects of the music. Previous studies with children with special educational needs (Savan, 1999; Hallam and Price, 1996) and with young children (Katsarou and Hallam, 1998), had shown that arousing music had negative effects on performance while calming music had positive effects. These findings were replicated by Godwin (1999) who also explored the childrens' awareness of the effects of the music. She showed that 10-11 year olds were inaccurate in their perceptions of the effects of the music on their performance, believing that they had performed better when the arousing music was playing. The differences in performance and awareness of the impact of the music between adult and child suggest that adults can not only make a realistic estimate of the likely effect of music on their performance but may also be able to focus their attention in such a way that they can eliminate negative effects. This level of self-awareness and self-control indicates high levels of metacognitive skills which can be applied to mediate the effects of music if necessary. Such skills are clearly not accessible to primary aged children and would appear to develop during the teenage years. Further research is required to develop these hypotheses.

9.7 Comparison of findings from the two studies

The findings from the questionnaire data and the empirical study offer different perspectives - one providing subjective reports of music listening behaviour, the other actual evidence of the effects of music and additional subjective reports of its perceived effects on performance. The data relating to the participants' subjective experiences of the effects of music on task performance is not inconsistent across the two studies. In both cases the music is perceived to have an impact and in real life settings participants reported manipulating music to support their studying.

Where there is a discrepancy is between the reported effects and the actual effects as evidenced from the experimental study. On the basis of these findings it is not possible to draw any firm conclusions as to why there might be these differences. As indicated above, one possible explanation may be that adults are able to adopt strategies which minimise the impact of the music. Another is simply that the music has no effect on cognitive functioning per se but is perceived to do so. Further experimental work will be necessary to answer these questions.

9.8 Model

In the introductory chapters of this thesis a model was set out which attempted to provide a framework for understanding the effects of music on learning and behaviour. The evidence presented in the thesis can assist in elaborating that model. Firstly, it indicates that the model additionally needs to take account of cultural differences, secondly it indicates that there are indeed are age, gender and musical experience differences which can mediate the effects of music on learning and behaviour and thirdly it outlines that metacognitive skills may have an important role to play in mediating the impact of music on performance. Figure 165 sets out a revised model which additionally includes cultural factors.

Future research should consider the extend to which culture acts as an overarching influence on the individual and on micro level social influences (family, friends, media, habits) in determining listening habits; the extent to which the type of music (familiarity, complexity, volume) affects performance; the extent to which the individual can control the impact of music on their studying.

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[redacted]

FIGURE 165: Model, suggesting the processes of listening to background music while studying (Kotsopoulou, 2001)

9.9 Limitations of the study

The study has a number of limitations. Because of the exploratory nature of the research, the questionnaire was derived from responses made in semi-structured interviews with a sample of students. While this ensured considerable ecological and face validity its bottom up approach did not lend itself to the systematic development of a psychological measuring instrument. For this reason consideration of reliability and validity as would be appropriate for systematic test become inappropriate, although as stated above the questionnaire has considerable ecological and face validity.

As with all questionnaires, responses were based on self report. There are limits to the confidence we can place on these given that the respondents may, for a variety of reasons, not report their views or behaviours accurately. This may be because they are giving responses which they believe to be socially desirable, they are genuinely unable to access their internal processes or responses or because they are inaccurate in their estimation of their actual behaviour.

While the overall sample for the research was sizeable, for each nationality and the sub-groups within it there were relatively small numbers of participants. To ensure the generalisability of these findings, the study would need to be replicated with a much larger sample. The students were drawn from inner city areas and attended similar types of schools, which further limits the possibilities for generalisability. In relation to the experimental study, with such a small sample consisting of postgraduate students it would be totally inappropriate to suggest that these findings could be generalised to the population at large. In addition, the researcher was unable to personally collect the data from two of the nationalities taking part, which may have lessoned the rigour of the procedures.

Although the survey took account of national differences in the nature of the music listened to, this in itself made some of the comparison procedures difficult. Care was taken to ensure accurate translation of the questionnaire, but some of the concepts used, e.g. course work, problem solving, reading may have had slightly different meanings within each culture. In addition the frequencies with which different studying activities were required within the different educational systems within each culture may have differed.

We should not rule out the possibility that the substantive differences in findings relating to the Japanese participants as opposed to the other nationalities may not be due to differences in their listening habits but different ways of responding to questionnaires. There may be an inherent tendency to respond more cautiously to a range of statements regardless of their content. The gender differences in listening and using music to study may also reflect different response tendencies or simply reflect more fundamentally different gender behaviour.

The survey, by its very nature, was unable to explore actual listening habits or their effects. The experimental procedure went some way to overcoming this problem but for practical reasons it was not possible to undertake it with representation from each nationality, age or level of musical involvement. Ideally, this would have been undertaken. The sample for the experimental procedure was representative of the UK only and consisted of learners who were more mature than those in the survey. The relatively small sample also made it difficult to draw any firm conclusions about the effects of the different types of music on the three task difficulty levels in the comprehension task, although the overall findings indicating a lack of effect of different music on task performance.

The research described here was intended to be exploratory in nature, because of the dearth of relevant prior work on which to build. While the findings further our knowledge considerably, the thesis represents a starting point for further research rather than an endpoint. Areas of particular interest for the future include exploration of:

- the ways that music is embedded within everyday activities in different cultures;
- the ways that children are socialised into particular listening practices within different cultures;
- whether the actual processing of music is different between cultures and music of different genres within those cultures;
- the relationship between listening to music and musical involvement in different cultures;
- how metacognitive skills relating to awareness of the effects of music on learning and behaviour develop between childhood and adulthood and what factors influence their development;
- why particular learning or generative tasks are perceived to be more or less positively affected by the playing of background music;
- how gender differences in listening to music and the perceived purposes of listening develop;
- at what levels of musical expertise does the range of music listened to increase;

- at what level of musical expertise do differences develop in the way music is processed and listened to in everyday life.

9.10 Implications of the research

The most obvious implications of the research relate to the extent to which music is listened to while studying and the relative lack of awareness of its possible negative effects on learning outcomes particularly in the younger male students. Previous research has indicated that arousing music tends to lead to a lack of concentration and a subsequent lowering of performance, particularly where tasks which require active cognitive processing (Godwin, 1999). Male students prefer arousing music and many of the younger students indicated that they would not turn music off even if they felt it was hampering their concentration. Students need to be given information about the possible effects of music on their behaviour and cognitive functioning and know how to use music to help rather than hinder their learning. This needs to take account of stable individual differences, diurnal variation and changes as a result of environmental factors.

It would also be helpful for teachers to be made aware of the possible benefits and costs of having particular types of music playing in the background while undertaking particular tasks. Teachers might, in negotiation with students, explore what kinds of music best promote their learning in lessons. This would serve to model the process and demonstrate to the students the ways in which they can use music to provide an optimum learning environment for a given task at any point in time.

APPENDIX

Please tick (✓) the appropriate box

No	Question	✓	Possible answer
1	Gender		Male
			Female
2	Nationality and Ethnic group (please state)		
3	Age		12-13
			16-17
			20-21
4	Do you play any music instrument?		Piano, keyboard
			Guitar
			Strings
			Brass and woodwind
			Percussion
			Nothing

No	Question	Always	frequently	occasionally	rarely	never
5	In my free time I listen to music					
6	As a child I listened to music at home					
7	***I listen to music when I*** - wake up					
8	- go to sleep					
9	- am at home in the morning					
10	- am at home in the evening					
11	- am eating					
12	- take a bath					
13	- am travelling					
14	- am studying					
15	- am revising for exams					
16	- am writing					
17	- am memorizing texts					
18	- am reading					
19	- am doing course work					
20	- am editing work previously					

No	Question	Always	frequently	occasionally	rarely	never
	completed					
21	- am solving problems					
22	- am developing ideas					
23	- thinking					
24	***I believe that music*** -helps me concentrate					
25	- keeps me company					
26	- alleviates my boredom					
27	- relaxes me					
28	- helps me learn faster					
29	- interferes so that I can=t concentrate					
30	- interferes because I sing along					
31	- interferes because it makes me too aroused					
32	I listen to music when I am studying my favourite subject					
33	I listen to music when I am studying my least favourite subject					
34	I listen to music when I am learning a foreign language					
35	***While studying I listen to*** - my favourite music					
36	- songs that I know					
37	- music with a fast tempo					
38	- music with a slow tempo					
39	- songs					
40	- loud music					
41	- instrumental music					
42	- calming music					
43	- arousing music					
44	- blues					
45	- classical					
46	- country					

No	Question	Always	frequently	occasionally	rarely	never
47	- easy listening					
48	- folk/world music					
49	- reggae					
50	- rock					
51	- pop					
52	-soul					
53	-dance					
54	-jazz					
55	-gospel					
	JAPAN -popular					
	-TV themes					
	-enka					
	-new music					
	-folk songs					
	-kayoh kyoku					
	-commercial music					
	GREECE -greek pop					
	-greek orchestral					
	-greek popular					
	-greek folk					
56	other (please specify)_______________					
57	Is there any specific music you listen to while studying, e.g. particular composer, group, artists? _______________					
58	***While studying I listen to*** - the radio					
59	- recorded music					
60	*I listen to music while studying* - when I am happy					
61	- when I am bored					
62	- when I like the subject					

No	Question	Always	frequently	occasionally	rarely	never
63	- when I don=t like the subject					
64	- when I am disturbed by other noises around me					
65	***I turn the music of when*** - I can=t concentrate					
66	- it makes me nervous					
67	- I am unable to learn					
68	- someone suggests I should					
69	***When choosing to listen to music while studying what factors do you think influence you?*** - the type of music					
70	- the subject I am studying					
71	- the nature of the subject					
72	- the mood I am in					

73	When did you start listening to music while you were studying (please write the age)		Years old
			I do not listen to music while I am studying
74	Did your family approve of you listening to music while you were studying?		Yes
			No
75	Do you study alone?		Yes
			No
76	If you share a study room with others do you all listen to music?		Yes
			No
77	Do you use walkman?		Yes
			No

LOGICAL REASONING TASK

Time of starting this test…………………….. Time of finishing this test………………

State whether the third of the tree statements is the right or wrong logical conclusion to be drawn from the preceding statements.

EXAMPLES

All these bonbons are chocolate creams;
All these bonbons are delicious.
Chocolate creams are Delicious. Right/ Wrong

The answer is wrong, being in excess of the right one which is 'Some chocolate creams are delicious'.

Some pillows are soft;
No pokers are soft.
Some pokers are not pillows. Right/ Wrong

The answer is wrong. The correct answer is 'Some pillows are not pokers'

Continue through the questions marking whether they are right or wrong. If you think they are incorrect do not put the correct answer.

1. No doctors are enthusiastic;
You are enthusiastic.
You are not a doctor. Right/ Wrong

2. Dictionaries are useful;
Useful books are valuable.
Dictionaries are valuable. Right/ Wrong

3. Gold is heavy;
Nothing but gold will silence him.
Nothing light will silence him. Right/ Wrong

4. No misers are unselfish;
None but misers save eggshells.
No unselfish people save eggshells. Right/ Wrong

5. I saw it in a newspaper;
All newspapers tell lies.
It was a lie. Right/ Wrong

6. His song never last and hour;
A song, that lasts an hour, is tedious.
His songs are never tedious. Right/ Wrong

7. All lions are fierce;
Some lions do not drink coffee.
Some creatures that drink coffee are not fierce. Right/ Wrong

8. All uneducated people are shallow;
Students are all educated.
No students are shallow. Right/ Wrong

9. Ill-managed business is unprofitable;
Railways are never ill-managed.
All railways are profitable. Right/ Wrong

10. No monkeys are soldiers;
All monkeys are mischievous.
Some mischievous creatures are not soldiers. Right/ Wrong

11. All wise men walk on their feet;
All unwise men walk on their hands.
No man walks both ways. Right/ Wrong

12. No professors are ignorant;
All ignorant people are vain.
No professors are vain. Right/ Wrong

13. No birds, except peacocks, are proud of their tails;
Some birds, that are proud of their tales, cannot sing.
Some peacocks cannot sing. Right/ Wrong

14. No wheelbarrows are comfortable;
No uncomfortable vehicles are popular.
No wheelbarrows are popular. Right/ Wrong

15. Bores are dreaded;
No bore is ever begged to prolong his visit.
No one, who is dreaded, is ever begged to prolong his visit. Right/ Wrong

16. No emperors are dentists;
All dentists are dreaded by children.
No emperors are dreaded by children. Right/ Wrong

17. Every eagle san fly;
Some pigs cannot fly.
Some pigs are not eagles. Right/ Wrong

18. improbable stories are not easily believed;
None of his stories are probable.
None of his stories are easily believed. Right/ Wrong

19. Some accountants are ungenerous;
All my uncles are generous.
My uncles are not accountants. Right/ Wrong

20. Some candles give very little light;
Candles are meant to give light.
Some things, that are meant to give light, give very little. Right/ Wrong

CORRECT ANSWERS

1. Right
2. Right
3. Right
4. Right
5. Wrong
6. Wrong
7. Wrong
8. Wrong
9. Wrong
10. Right
11. Wrong
12. Wrong
13. Right
14. Right
15. Wrong
16. Wrong
17. Right
18. Right
19. Wrong
20. Right

TEXT I

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

Depression Alliance (1998)

TEXT II

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

[redacted]

Affective Dissorders (p. 204-205) Stern, S and Mendels, J. (1980)in the book *New Perspectives in Abnormal Psychology*

TEXT III

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

Drevets WC (Annual Review of Medicine 1998; 49:341-61)

Instructions

Please read the text on the attached sheet quietly and ant your own pace. You will not be asked to do anything further without being able to look at the text. When you have read the text, please complete this page, using the other side if necessary and numbering items appropriately.

1. How long did your reading take?_______ minutes

2. Underline those sections to which you think you gave most thought in your reading.

3. What do you see as the main point or points in the text?

4. Report anything you disagree with in the text and say why.

5. What, if anything, surprised you in the text? Why?

6. What do you think the author was trying to achieve in writing the text?

7. Suggest a title for the text

Thank you. Now please turn to the second page.

8. Did you notice the piece of music that was playing in the background? YES / NO.

9. What affect did the music have on you?

10. What affect did the music have on your reading? Was if affected?
YES / NO. If yes, how?

11. Do you normally listen to music while you are studying? YES / NO

12.Do you think that a different piece of music would have had a different affect?
YES / NO. If yes, how?

13. Do you think that you would have understood the text better if there was no music playing in the background? YES / NO.

Thank you for taking the time and trouble to respond. Please return your response sheets together with the text.

NATIONALITY
Multiple Comparisons
Bonferroni

			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Dependent Variable	(I) nationality	(J) nationality				Lower Bound	Upper Bound
listening in free time	English	Greek	1,03E-02	,12	1,000	-,31	,33
		Japanese	-,46	,13	,002	-,80	-,13
		American	5,28E-02	,12	1,000	-,27	,38
	Greek	English	-1,03E-02	,12	1,000	-,33	,31
		Japanese	-,47	,12	,001	-,80	-,15
		American	4,25E-02	,12	1,000	-,27	,35
	Japanese	English	,46	,13	,002	,13	,80
		Greek	,47	,12	,001	,15	,80
		American	,52	,12	,000	,19	,84
	American	English	-5,28E-02	,12	1,000	-,38	,27
		Greek	-4,25E-02	,12	1,000	-,35	,27
		Japanese	-,52	,12	,000	-,84	-,19
listening as a child	English	Greek	-,12	,13	1,000	-,46	,22
		Japanese	-,60	,14	,000	-,96	-,24
		American	-,16	,13	1,000	-,50	,19
	Greek	English	,12	,13	1,000	-,22	,46
		Japanese	-,48	,13	,002	-,82	-,13
		American	-3,84E-02	,12	1,000	-,37	,29
	Japanese	English	,60	,14	,000	,24	,96
		Greek	,48	,13	,002	,13	,82
		American	,44	,13	,005	9,44E-02	,79
	American	English	,16	,13	1,000	-,19	,50
		Greek	3,84E-02	,12	1,000	-,29	,37
		Japanese	-,44	,13	,005	-,79	-9,44E-02
when waking up	English	Greek	-,32	,20	,698	-,85	,22
		Japanese	-,93	,21	,000	-1,48	-,37
		American	,22	,20	1,000	-,32	,75
	Greek	English	,32	,20	,698	-,22	,85
		Japanese	-,61	,20	,016	-1,15	-7,34E-02
		American	,53	,19	,037	1,99E-02	1,04
	Japanese	English	,93	,21	,000	,37	1,48
		Greek	,61	,20	,016	7,34E-02	1,15
		American	1,14	,20	,000	,60	1,68
	American	English	-,22	,20	1,000	-,75	,32
		Greek	-,53	,19	,037	-1,04	-1,99E-02
		Japanese	-1,14	,20	,000	-1,68	-,60
when going to sleep	English	Greek	2,55E-03	,18	1,000	-,48	,48
		Japanese	-,25	,19	1,000	-,76	,25
		American	-1,08E-02	,18	1,000	-,49	,47
	Greek	English	-2,55E-03	,18	1,000	-,48	,48

		Japanese	-,26	,18	,970	-,74	,23
		American	-1,34E-02	,17	1,000	-,48	,45
	Japanese	English	,25	,19	1,000	-,25	,76
		Greek	,26	,18	,970	-,23	,74
		American	,24	,18	1,000	-,24	,73
	American	English	1,08E-02	,18	1,000	-,47	,49
		Greek	1,34E-02	,17	1,000	-,45	,48
		Japanese	-,24	,18	1,000	-,73	,24
listening at home in the morning	English	Greek	6,92E-02	,17	1,000	-,39	,53
		Japanese	-,88	,18	,000	-1,37	-,40
		American	,11	,17	1,000	-,35	,57
	Greek	English	-6,92E-02	,17	1,000	-,53	,39
		Japanese	-,95	,17	,000	-1,42	-,49
		American	4,11E-02	,17	1,000	-,40	,48
	Japanese	English	,88	,18	,000	,40	1,37
		Greek	,95	,17	,000	,49	1,42
		American	,99	,18	,000	,53	1,46
	American	English	-,11	,17	1,000	-,57	,35
		Greek	-4,11E-02	,17	1,000	-,48	,40
		Japanese	-,99	,18	,000	-1,46	-,53
listening at home in the evening	English	Greek	-,29	,15	,368	-,70	,12
		Japanese	-,27	,16	,560	-,70	,16
		American	-,20	,16	1,000	-,61	,21
	Greek	English	,29	,15	,368	-,12	,70
		Japanese	1,79E-02	,16	1,000	-,39	,43
		American	9,11E-02	,15	1,000	-,30	,48
	Japanese	English	,27	,16	,560	-,16	,70
		Greek	-1,79E-02	,16	1,000	-,43	,39
		American	7,32E-02	,16	1,000	-,34	,49
	American	English	,20	,16	1,000	-,21	,61
		Greek	-9,11E-02	,15	1,000	-,48	,30
		Japanese	-7,32E-02	,16	1,000	-,49	,34
eating	English	Greek	,16	,16	1,000	-,27	,59
		Japanese	-,84	,17	,000	-1,29	-,40
		American	2,99E-02	,16	1,000	-,40	,46
	Greek	English	-,16	,16	1,000	-,59	,27
		Japanese	-1,00	,16	,000	-1,43	-,57
		American	-,13	,15	1,000	-,54	,28
	Japanese	English	,84	,17	,000	,40	1,29
		Greek	1,00	,16	,000	,57	1,43
		American	,87	,16	,000	,44	1,30
	American	English	-2,99E-02	,16	1,000	-,46	,40
		Greek	,13	,15	1,000	-,28	,54
		Japanese	-,87	,16	,000	-1,30	-,44
taking a bath	English	Greek	,57	,19	,014	7,50E-02	1,06
		Japanese	-1,07	,19	,000	-1,58	-,56
		American	,31	,19	,594	-,19	,80

	Greek	English	-,57	,19	,014	-1,06	-7,50E-02
		Japanese	-1,64	,19	,000	-2,13	-1,14
		American	-,26	,18	,883	-,73	,21
	Japanese	English	1,07	,19	,000	,56	1,58
		Greek	1,64	,19	,000	1,14	2,13
		American	1,38	,19	,000	,88	1,87
	American	English	-,31	,19	,594	-,80	,19
		Greek	,26	,18	,883	-,21	,73
		Japanese	-1,38	,19	,000	-1,87	-,88
travelling	English	Greek	,15	,16	1,000	-,26	,57
		Japanese	-,83	,16	,000	-1,26	-,40
		American	,61	,16	,001	,20	1,02
	Greek	English	-,15	,16	1,000	-,57	,26
		Japanese	-,98	,16	,000	-1,39	-,57
		American	,46	,15	,014	6,24E-02	,85
	Japanese	English	,83	,16	,000	,40	1,26
		Greek	,98	,16	,000	,57	1,39
		American	1,44	,16	,000	1,02	1,85
	American	English	-,61	,16	,001	-1,02	-,20
		Greek	-,46	,15	,014	-,85	-6,24E-02
		Japanese	-1,44	,16	,000	-1,85	-1,02
studying	English	Greek	-,33	,18	,429	-,82	,15
		Japanese	-,23	,19	1,000	-,73	,28
		American	-,32	,18	,508	-,81	,17
	Greek	English	,33	,18	,429	-,15	,82
		Japanese	,11	,18	1,000	-,38	,59
		American	1,33E-02	,18	1,000	-,45	,48
	Japanese	English	,23	,19	1,000	-,28	,73
		Greek	-,11	,18	1,000	-,59	,38
		American	-9,27E-02	,18	1,000	-,58	,40
	American	English	,32	,18	,508	-,17	,81
		Greek	-1,33E-02	,18	1,000	-,48	,45
		Japanese	9,27E-02	,18	1,000	-,40	,58
revising for exams	English	Greek	-,63	,18	,003	-1,10	-,15
		Japanese	-,69	,19	,002	-1,19	-,19
		American	-,26	,18	,886	-,74	,22
	Greek	English	,63	,18	,003	,15	1,10
		Japanese	-6,08E-02	,18	1,000	-,54	,42
		American	,37	,17	,203	-9,01E-02	,82
	Japanese	English	,69	,19	,002	,19	1,19
		Greek	6,08E-02	,18	1,000	-,42	,54
		American	,43	,18	,112	-5,23E-02	,91
	American	English	,26	,18	,886	-,22	,74
		Greek	-,37	,17	,203	-,82	9,01E-02
		Japanese	-,43	,18	,112	-,91	5,23E-02
writing	English	Greek	6,68E-02	,18	1,000	-,41	,55
		Japanese	-,79	,19	,000	-1,29	-,29
		American	-,17	,18	1,000	-,65	,31
	Greek	English	-6,68E-02	,18	1,000	-,55	,41
		Japanese	-,86	,18	,000	-1,34	-,37
		American	-,24	,17	1,000	-,70	,22
	Japanese	English	,79	,19	,000	,29	1,29
		Greek	,86	,18	,000	,37	1,34

		American	,62	,18	,005	,13	1,10
	American	English	,17	,18	1,000	-,31	,65
		Greek	,24	,17	1,000	-,22	,70
		Japanese	-,62	,18	,005	-1,10	-,13
memorizing texts	English	Greek	-,35	,16	,149	-,77	6,27E-02
		Japanese	-,35	,16	,216	-,78	9,00E-02
		American	8,09E-05	,16	1,000	-,42	,42
	Greek	English	,35	,16	,149	-6,27E-02	,77
		Japanese	7,95E-03	,16	1,000	-,41	,43
		American	,35	,15	,117	-4,63E-02	,75
	Japanese	English	,35	,16	,216	-9,00E-02	,78
		Greek	-7,95E-03	,16	1,000	-,43	,41
		American	,35	,16	,178	-7,44E-02	,77
	American	English	-8,09E-05	,16	1,000	-,42	,42
		Greek	-,35	,15	,117	-,75	4,63E-02
		Japanese	-,35	,16	,178	-,77	7,44E-02
reading	English	Greek	1,19E-03	,18	1,000	-,47	,47
		Japanese	-7,99E-02	,18	1,000	-,57	,41
		American	-8,27E-02	,18	1,000	-,55	,39
	Greek	English	-1,19E-03	,18	1,000	-,47	,47
		Japanese	-8,11E-02	,18	1,000	-,55	,39
		American	-8,39E-02	,17	1,000	-,53	,37
	Japanese	English	7,99E-02	,18	1,000	-,41	,57
		Greek	8,11E-02	,18	1,000	-,39	,55
		American	-2,81E-03	,18	1,000	-,48	,47
	American	English	8,27E-02	,18	1,000	-,39	,55
		Greek	8,39E-02	,17	1,000	-,37	,53
		Japanese	2,81E-03	,18	1,000	-,47	,48
doing course work	English	Greek	,27	,18	,827	-,21	,74
		Japanese	-,61	,19	,008	-1,11	-,11
		American	5,79E-02	,18	1,000	-,42	,54
	Greek	English	-,27	,18	,827	-,74	,21
		Japanese	-,88	,18	,000	-1,35	-,40
		American	-,21	,17	1,000	-,67	,25
	Japanese	English	,61	,19	,008	,11	1,11
		Greek	,88	,18	,000	,40	1,35
		American	,67	,18	,002	,19	1,15
	American	English	-5,79E-02	,18	1,000	-,54	,42
		Greek	,21	,17	1,000	-,25	,67
		Japanese	-,67	,18	,002	-1,15	-,19
editing work previously completed	English	Greek	-,84	,18	,000	-1,31	-,38
		Japanese	-,43	,18	,120	-,91	5,81E-02
		American	-,28	,18	,658	-,75	,18
	Greek	English	,84	,18	,000	,38	1,31
		Japanese	,41	,18	,118	-5,45E-02	,88
		American	,56	,17	,006	,11	1,01
	Japanese	English	,43	,18	,120	-5,81E-02	,91
		Greek	-,41	,18	,118	-,88	5,45E-02

		American	,15	,18	1,000	-,32	,62
	American	English	,28	,18	,658	-,18	,75
		Greek	-,56	,17	,006	-1,01	-,11
		Japanese	-,15	,18	1,000	-,62	,32
solving problems	English	Greek	-9,74E-02	,18	1,000	-,59	,39
		Japanese	-,18	,19	1,000	-,69	,33
		American	,14	,19	1,000	-,35	,63
	Greek	English	9,74E-02	,18	1,000	-,39	,59
		Japanese	-7,94E-02	,19	1,000	-,57	,41
		American	,23	,18	1,000	-,24	,70
	Japanese	English	,18	,19	1,000	-,33	,69
		Greek	7,94E-02	,19	1,000	-,41	,57
		American	,31	,19	,563	-,18	,81
	American	English	-,14	,19	1,000	-,63	,35
		Greek	-,23	,18	1,000	-,70	,24
		Japanese	-,31	,19	,563	-,81	,18
developing ideas	English	Greek	-5,33E-03	,17	1,000	-,47	,46
		Japanese	-,62	,18	,005	-1,10	-,13
		American	,13	,18	1,000	-,33	,60
	Greek	English	5,33E-03	,17	1,000	-,46	,47
		Japanese	-,61	,18	,003	-1,08	-,15
		American	,14	,17	1,000	-,31	,58
	Japanese	English	,62	,18	,005	,13	1,10
		Greek	,61	,18	,003	,15	1,08
		American	,75	,18	,000	,28	1,22
	American	English	-,13	,18	1,000	-,60	,33
		Greek	-,14	,17	1,000	-,58	,31
		Japanese	-,75	,18	,000	-1,22	-,28
thinking	English	Greek	,37	,18	,235	-,10	,85
		Japanese	-,28	,19	,852	-,78	,22
		American	,40	,18	,157	-7,60E-02	,88
	Greek	English	-,37	,18	,235	-,85	,10
		Japanese	-,65	,18	,002	-1,13	-,17
		American	3,07E-02	,17	1,000	-,43	,49
	Japanese	English	,28	,19	,852	-,22	,78
		Greek	,65	,18	,002	,17	1,13
		American	,68	,18	,001	,20	1,16
	American	English	-,40	,18	,157	-,88	7,60E-02
		Greek	-3,07E-02	,17	1,000	-,49	,43
		Japanese	-,68	,18	,001	-1,16	-,20
helps concentrate	English	Greek	-,30	,18	,537	-,78	,17
		Japanese	-,38	,19	,241	-,88	,11
		American	,18	,18	1,000	-,29	,66
	Greek	English	,30	,18	,537	-,17	,78
		Japanese	-8,08E-02	,18	1,000	-,56	,40
		American	,49	,17	,028	3,25E-02	,94
	Japanese	English	,38	,19	,241	-,11	,88
		Greek	8,08E-02	,18	1,000	-,40	,56
		American	,57	,18	,010	9,04E-02	1,05
	American	English	-,18	,18	1,000	-,66	,29

		Greek	-,49	,17	,028	-,94	-3,25E-02
		Japanese	-,57	,18	,010	-1,05	-9,04E-02
keeps company	English	Greek	,78	,15	,000	,38	1,18
		Japanese	-,33	,16	,201	-,75	8,10E-02
		American	,21	,15	1,000	-,19	,60
	Greek	English	-,78	,15	,000	-1,18	-,38
		Japanese	-1,12	,15	,000	-1,52	-,72
		American	-,58	,14	,000	-,96	-,20
	Japanese	English	,33	,16	,201	-8,10E-02	,75
		Greek	1,12	,15	,000	,72	1,52
		American	,54	,15	,002	,14	,94
	American	English	-,21	,15	1,000	-,60	,19
		Greek	,58	,14	,000	,20	,96
		Japanese	-,54	,15	,002	-,94	-,14
alleviates boredom	English	Greek	,31	,14	,176	-6,70E-02	,70
		Japanese	,17	,15	1,000	-,23	,57
		American	,20	,14	,988	-,18	,58
	Greek	English	-,31	,14	,176	-,70	6,70E-02
		Japanese	-,15	,14	1,000	-,53	,23
		American	-,11	,14	1,000	-,48	,25
	Japanese	English	-,17	,15	1,000	-,57	,23
		Greek	,15	,14	1,000	-,23	,53
		American	3,54E-02	,15	1,000	-,35	,42
	American	English	-,20	,14	,988	-,58	,18
		Greek	,11	,14	1,000	-,25	,48
		Japanese	-3,54E-02	,15	1,000	-,42	,35
relaxes me	English	Greek	,22	,14	,661	-,14	,58
		Japanese	-,13	,14	1,000	-,50	,25
		American	-5,11E-02	,14	1,000	-,41	,31
	Greek	English	-,22	,14	,661	-,58	,14
		Japanese	-,34	,14	,075	-,70	1,92E-02
		American	-,27	,13	,241	-,61	7,71E-02
	Japanese	English	,13	,14	1,000	-,25	,50
		Greek	,34	,14	,075	-1,92E-02	,70
		American	7,39E-02	,14	1,000	-,29	,44
	American	English	5,11E-02	,14	1,000	-,31	,41
		Greek	,27	,13	,241	-7,71E-02	,61
		Japanese	-7,39E-02	,14	1,000	-,44	,29
helps me learn faster	English	Greek	-,24	,18	,996	-,71	,22
		Japanese	,16	,18	1,000	-,33	,65
		American	-,14	,18	1,000	-,61	,33
	Greek	English	,24	,18	,996	-,22	,71
		Japanese	,40	,18	,138	-6,56E-02	,88
		American	,11	,17	1,000	-,34	,55
	Japanese	English	-,16	,18	1,000	-,65	,33
		Greek	-,40	,18	,138	-,88	6,56E-02
		American	-,30	,18	,562	-,77	,17
	American	English	,14	,18	1,000	-,33	,61
		Greek	-,11	,17	1,000	-,55	,34
		Japanese	,30	,18	,562	-,17	,77

interferes so I can't concentrate	English	Greek	,29	,18	,677	-,19	,77
		Japanese	-,36	,19	,345	-,86	,14
		American	-9,47E-02	,18	1,000	-,58	,39
	Greek	English	-,29	,18	,677	-,77	,19
		Japanese	-,65	,18	,002	-1,13	-,17
		American	-,38	,17	,171	-,84	7,86E-02
	Japanese	English	,36	,19	,345	-,14	,86
		Greek	,65	,18	,002	,17	1,13
		American	,27	,18	,876	-,22	,75
	American	English	9,47E-02	,18	1,000	-,39	,58
		Greek	,38	,17	,171	-7,86E-02	,84
		Japanese	-,27	,18	,876	-,75	,22
interferes because I sing along	English	Greek	,42	,19	,143	-7,10E-02	,91
		Japanese	-,59	,19	,017	-1,10	-6,98E-02
		American	-8,90E-02	,19	1,000	-,58	,41
	Greek	English	-,42	,19	,143	-,91	7,10E-02
		Japanese	-1,01	,19	,000	-1,50	-,51
		American	-,51	,18	,027	-,98	-3,73E-02
	Japanese	English	,59	,19	,017	6,98E-02	1,10
		Greek	1,01	,19	,000	,51	1,50
		American	,50	,19	,051	-7,79E-04	,99
	American	English	8,90E-02	,19	1,000	-,41	,58
		Greek	,51	,18	,027	3,73E-02	,98
		Japanese	-,50	,19	,051	-,99	7,79E-04
interferes because it makes me too aroused	English	Greek	-,20	,16	1,000	-,63	,23
		Japanese	-,43	,17	,071	-,88	2,07E-02
		American	-,15	,16	1,000	-,58	,29
	Greek	English	,20	,16	1,000	-,23	,63
		Japanese	-,23	,16	,922	-,67	,20
		American	5,03E-02	,16	1,000	-,36	,47
	Japanese	English	,43	,17	,071	-2,07E-02	,88
		Greek	,23	,16	,922	-,20	,67
		American	,28	,16	,507	-,15	,72
	American	English	,15	,16	1,000	-,29	,58
		Greek	-5,03E-02	,16	1,000	-,47	,36
		Japanese	-,28	,16	,507	-,72	,15
listen with my favourite subject	English	Greek	-,35	,19	,372	-,85	,15
		Japanese	-,28	,20	,929	-,80	,24
		American	-,25	,19	1,000	-,75	,25
	Greek	English	,35	,19	,372	-,15	,85
		Japanese	7,12E-02	,19	1,000	-,43	,57
		American	,10	,18	1,000	-,38	,58

	Japanese	English	,28	,20	,929	-,24	,80
		Greek	-7,12E-02	,19	1,000	-,57	,43
		American	2,94E-02	,19	1,000	-,47	,53
	American	English	,25	,19	1,000	-,25	,75
		Greek	-,10	,18	1,000	-,58	,38
		Japanese	-2,94E-02	,19	1,000	-,53	,47
listen with least favourite subject	English	Greek	-,46	,19	,109	-,97	5,40E-02
		Japanese	-,39	,20	,342	-,92	,15
		American	-,15	,19	1,000	-,67	,36
	Greek	English	,46	,19	,109	-5,40E-02	,97
		Japanese	7,26E-02	,19	1,000	-,44	,59
		American	,31	,19	,592	-,19	,80
	Japanese	English	,39	,20	,342	-,15	,92
		Greek	-7,26E-02	,19	1,000	-,59	,44
		American	,24	,20	1,000	-,28	,75
	American	English	,15	,19	1,000	-,36	,67
		Greek	-,31	,19	,592	-,80	,19
		Japanese	-,24	,20	1,000	-,75	,28
learning a foreign language	English	Greek	,41	,16	,062	-1,23E-02	,84
		Japanese	,41	,17	,085	-3,18E-02	,86
		American	-,13	,16	1,000	-,56	,29
	Greek	English	-,41	,16	,062	-,84	1,23E-02
		Japanese	2,43E-04	,16	1,000	-,43	,43
		American	-,55	,15	,003	-,95	-,14
	Japanese	English	-,41	,17	,085	-,86	3,18E-02
		Greek	-2,43E-04	,16	1,000	-,43	,43
		American	-,55	,16	,005	-,97	-,12
	American	English	,13	,16	1,000	-,29	,56
		Greek	,55	,15	,003	,14	,95
		Japanese	,55	,16	,005	,12	,97
listen to my favourite music	English	Greek	-,37	,20	,369	-,90	,15
		Japanese	7,82E-02	,21	1,000	-,47	,63
		American	-,22	,20	1,000	-,75	,31
	Greek	English	,37	,20	,369	-,15	,90
		Japanese	,45	,20	,147	-7,88E-02	,98
		American	,15	,19	1,000	-,36	,66
	Japanese	English	-7,82E-02	,21	1,000	-,63	,47
		Greek	-,45	,20	,147	-,98	7,88E-02
		American	-,30	,20	,815	-,83	,23
	American	English	,22	,20	1,000	-,31	,75
		Greek	-,15	,19	1,000	-,66	,36
		Japanese	,30	,20	,815	-,23	,83
songs that I know	English	Greek	-,16	,19	1,000	-,67	,36
		Japanese	-1,10E-02	,20	1,000	-,55	,53
		American	-3,83E-02	,20	1,000	-,56	,48

	Greek	English	,16	,19	1,000	-,36	,67
		Japanese	,15	,20	1,000	-,37	,67
		American	,12	,19	1,000	-,37	,62
	Japanese	English	1,10E-02	,20	1,000	-,53	,55
		Greek	-,15	,20	1,000	-,67	,37
		American	-2,73E-02	,20	1,000	-,55	,49
	American	English	3,83E-02	,20	1,000	-,48	,56
		Greek	-,12	,19	1,000	-,62	,37
		Japanese	2,73E-02	,20	1,000	-,49	,55
music with fast tempo	English	Greek	7,79E-02	,19	1,000	-,42	,57
		Japanese	,12	,20	1,000	-,40	,63
		American	,18	,19	1,000	-,32	,67
	Greek	English	-7,79E-02	,19	1,000	-,57	,42
		Japanese	3,73E-02	,19	1,000	-,46	,54
		American	9,82E-02	,18	1,000	-,38	,58
	Japanese	English	-,12	,20	1,000	-,63	,40
		Greek	-3,73E-02	,19	1,000	-,54	,46
		American	6,10E-02	,19	1,000	-,44	,56
	American	English	-,18	,19	1,000	-,67	,32
		Greek	-9,82E-02	,18	1,000	-,58	,38
		Japanese	-6,10E-02	,19	1,000	-,56	,44
music with slow tempo	English	Greek	,11	,18	1,000	-,35	,58
		Japanese	-7,24E-02	,18	1,000	-,56	,41
		American	-,34	,18	,341	-,80	,13
	Greek	English	-,11	,18	1,000	-,58	,35
		Japanese	-,19	,18	1,000	-,65	,28
		American	-,45	,17	,047	-,90	-3,87E-03
	Japanese	English	7,24E-02	,18	1,000	-,41	,56
		Greek	,19	,18	1,000	-,28	,65
		American	-,26	,18	,821	-,73	,21
	American	English	,34	,18	,341	-,13	,80
		Greek	,45	,17	,047	3,87E-03	,90
		Japanese	,26	,18	,821	-,21	,73
songs	English	Greek	-7,23E-02	,19	1,000	-,58	,44
		Japanese	-,31	,20	,758	-,85	,23
		American	-3,42E-02	,19	1,000	-,55	,48
	Greek	English	7,23E-02	,19	1,000	-,44	,58
		Japanese	-,24	,19	1,000	-,75	,28
		American	3,81E-02	,19	1,000	-,45	,53
	Japanese	English	,31	,20	,758	-,23	,85
		Greek	,24	,19	1,000	-,28	,75
		American	,28	,20	,951	-,24	,79
	American	English	3,42E-02	,19	1,000	-,48	,55
		Greek	-3,81E-02	,19	1,000	-,53	,45
		Japanese	-,28	,20	,951	-,79	,24
loud music	English	Greek	-5,04E-02	,19	1,000	-,56	,46
		Japanese	-,13	,20	1,000	-,66	,41
		American	4,94E-02	,19	1,000	-,46	,56
	Greek	English	5,04E-02	,19	1,000	-,46	,56
		Japanese	-7,77E-02	,19	1,000	-,59	,44
		American	9,97E-02	,19	1,000	-,39	,59

	Japanese	English	,13	,20	1,000	-,41	,66
		Greek	7,77E-02	,19	1,000	-,44	,59
		American	,18	,19	1,000	-,34	,69
	American	English	-4,94E-02	,19	1,000	-,56	,46
		Greek	-9,97E-02	,19	1,000	-,59	,39
		Japanese	-,18	,19	1,000	-,69	,34
instrumetn al music	English	Greek	,15	,16	1,000	-,27	,57
		Japanese	-,32	,17	,314	-,77	,12
		American	-,13	,16	1,000	-,55	,30
	Greek	English	-,15	,16	1,000	-,57	,27
		Japanese	-,48	,16	,018	-,90	-5,24E-02
		American	-,28	,15	,415	-,68	,13
	Japanese	English	,32	,17	,314	-,12	,77
		Greek	,48	,16	,018	5,24E-02	,90
		American	,20	,16	1,000	-,23	,62
	American	English	,13	,16	1,000	-,30	,55
		Greek	,28	,15	,415	-,13	,68
		Japanese	-,20	,16	1,000	-,62	,23
calming music	English	Greek	,22	,17	1,000	-,23	,68
		Japanese	-4,92E-02	,18	1,000	-,52	,42
		American	-,20	,17	1,000	-,65	,26
	Greek	English	-,22	,17	1,000	-,68	,23
		Japanese	-,27	,17	,678	-,73	,18
		American	-,42	,16	,063	-,86	1,34E-02
	Japanese	English	4,92E-02	,18	1,000	-,42	,52
		Greek	,27	,17	,678	-,18	,73
		American	-,15	,17	1,000	-,60	,31
	American	English	,20	,17	1,000	-,26	,65
		Greek	,42	,16	,063	-1,34E-02	,86
		Japanese	,15	,17	1,000	-,31	,60
arousing music	English	Greek	,63	,17	,002	,18	1,09
		Japanese	8,31E-02	,18	1,000	-,39	,56
		American	-1,08E-02	,17	1,000	-,47	,45
	Greek	English	-,63	,17	,002	-1,09	-,18
		Japanese	-,55	,17	,009	-1,01	-9,32E-02
		American	-,64	,16	,001	-1,08	-,21
	Japanese	English	-8,31E-02	,18	1,000	-,56	,39
		Greek	,55	,17	,009	9,32E-02	1,01
		American	-9,39E-02	,17	1,000	-,55	,37
	American	English	1,08E-02	,17	1,000	-,45	,47
		Greek	,64	,16	,001	,21	1,08
		Japanese	9,39E-02	,17	1,000	-,37	,55
radio	English	Greek	-,31	,18	,549	-,79	,17
		Japanese	-1,21	,19	,000	-1,71	-,70
		American	-,13	,18	1,000	-,61	,36
	Greek	English	,31	,18	,549	-,17	,79
		Japanese	-,90	,18	,000	-1,38	-,41
		American	,18	,18	1,000	-,28	,64
	Japanese	English	1,21	,19	,000	,70	1,71
		Greek	,90	,18	,000	,41	1,38
		American	1,08	,18	,000	,59	1,56

	American	English	,13	,18	1,000	-,36	,61
		Greek	-,18	,18	1,000	-,64	,28
		Japanese	-1,08	,18	,000	-1,56	-,59
recorded music	English	Greek	-,84	,19	,000	-1,33	-,34
		Japanese	-,75	,20	,001	-1,27	-,24
		American	-,63	,19	,005	-1,12	-,13
	Greek	English	,84	,19	,000	,34	1,33
		Japanese	8,31E-02	,19	1,000	-,41	,58
		American	,21	,18	1,000	-,26	,68
	Japanese	English	,75	,20	,001	,24	1,27
		Greek	-8,31E-02	,19	1,000	-,58	,41
		American	,13	,19	1,000	-,37	,63
	American	English	,63	,19	,005	,13	1,12
		Greek	-,21	,18	1,000	-,68	,26
		Japanese	-,13	,19	1,000	-,63	,37
happy	English	Greek	-5,10E-02	,19	1,000	-,55	,45
		Japanese	-,53	,20	,049	-1,05	-1,53E-03
		American	-,30	,19	,669	-,80	,20
	Greek	English	5,10E-02	,19	1,000	-,45	,55
		Japanese	-,47	,19	,077	-,98	2,89E-02
		American	-,25	,18	1,000	-,73	,23
	Japanese	English	,53	,20	,049	1,53E-03	1,05
		Greek	,47	,19	,077	-2,89E-02	,98
		American	,22	,19	1,000	-,28	,73
	American	English	,30	,19	,669	-,20	,80
		Greek	,25	,18	1,000	-,23	,73
		Japanese	-,22	,19	1,000	-,73	,28
bored	English	Greek	-,50	,19	,055	-1,00	5,70E-03
		Japanese	5,76E-02	,20	1,000	-,47	,58
		American	-,17	,19	1,000	-,68	,33
	Greek	English	,50	,19	,055	-5,70E-03	1,00
		Japanese	,56	,19	,023	4,92E-02	1,06
		American	,32	,18	,463	-,16	,81
	Japanese	English	-5,76E-02	,20	1,000	-,58	,47
		Greek	-,56	,19	,023	-1,06	-4,92E-02
		American	-,23	,19	1,000	-,74	,28
	American	English	,17	,19	1,000	-,33	,68
		Greek	-,32	,18	,463	-,81	,16
		Japanese	,23	,19	1,000	-,28	,74
like the subject	English	Greek	-,26	,19	1,000	-,76	,24
		Japanese	-,44	,20	,146	-,97	7,68E-02
		American	-,32	,19	,541	-,82	,18
	Greek	English	,26	,19	1,000	-,24	,76
		Japanese	-,19	,19	1,000	-,69	,31
		American	-6,22E-02	,18	1,000	-,54	,42
	Japanese	English	,44	,20	,146	-7,68E-02	,97
		Greek	,19	,19	1,000	-,31	,69
		American	,12	,19	1,000	-,38	,63
	American	English	,32	,19	,541	-,18	,82
		Greek	6,22E-02	,18	1,000	-,42	,54
		Japanese	-,12	,19	1,000	-,63	,38
dislike the	English	Greek	-,17	,19	1,000	-,69	,34

subject							
		Japanese	-,52	,20	,068	-1,05	2,19E-02
		American	-,10	,19	1,000	-,62	,41
	Greek	English	,17	,19	1,000	-,34	,69
		Japanese	-,34	,19	,475	-,86	,17
		American	7,13E-02	,19	1,000	-,42	,57
	Japanese	English	,52	,20	,068	-2,19E-02	1,05
		Greek	,34	,19	,475	-,17	,86
		American	,41	,20	,208	-,10	,93
	American	English	,10	,19	1,000	-,41	,62
		Greek	-7,13E-02	,19	1,000	-,57	,42
		Japanese	-,41	,20	,208	-,93	,10
disturbed by other noises	English	Greek	-,11	,19	1,000	-,61	,39
		Japanese	-,94	,20	,000	-1,46	-,41
		American	-,12	,19	1,000	-,63	,38
	Greek	English	,11	,19	1,000	-,39	,61
		Japanese	-,83	,19	,000	-1,34	-,32
		American	-1,65E-02	,18	1,000	-,50	,47
	Japanese	English	,94	,20	,000	,41	1,46
		Greek	,83	,19	,000	,32	1,34
		American	,81	,19	,000	,31	1,32
	American	English	,12	,19	1,000	-,38	,63
		Greek	1,65E-02	,18	1,000	-,47	,50
		Japanese	-,81	,19	,000	-1,32	-,31
can't concentrate	English	Greek	,21	,18	1,000	-,27	,69
		Japanese	-,53	,19	,030	-1,04	-3,19E-02
		American	-,28	,18	,776	-,76	,21
	Greek	English	-,21	,18	1,000	-,69	,27
		Japanese	-,75	,18	,000	-1,23	-,26
		American	-,49	,17	,032	-,95	-2,65E-02
	Japanese	English	,53	,19	,030	3,19E-02	1,04
		Greek	,75	,18	,000	,26	1,23
		American	,26	,18	,953	-,23	,74
	American	English	,28	,18	,776	-,21	,76
		Greek	,49	,17	,032	2,65E-02	,95
		Japanese	-,26	,18	,953	-,74	,23
makes me nervous	English	Greek	,84	,21	,000	,29	1,38
		Japanese	,62	,22	,026	4,79E-02	1,19
		American	,12	,21	1,000	-,43	,67
	Greek	English	-,84	,21	,000	-1,38	-,29
		Japanese	-,21	,21	1,000	-,77	,34
		American	-,71	,20	,002	-1,24	-,19
	Japanese	English	-,62	,22	,026	-1,19	-4,79E-02
		Greek	,21	,21	1,000	-,34	,77
		American	-,50	,21	,104	-1,05	5,44E-02
	American	English	-,12	,21	1,000	-,67	,43
		Greek	,71	,20	,002	,19	1,24
		Japanese	,50	,21	,104	-5,44E-02	1,05
unable to	English	Greek	,37	,20	,418	-,17	,90

learn							
		Japanese	-,41	,21	,325	-,97	,15
		American	-,15	,20	1,000	-,68	,39
	Greek	English	-,37	,20	,418	-,90	,17
		Japanese	-,77	,20	,001	-1,31	-,24
		American	-,51	,19	,051	-1,02	1,49E-03
	Japanese	English	,41	,21	,325	-,15	,97
		Greek	,77	,20	,001	,24	1,31
		American	,26	,20	1,000	-,28	,80
	American	English	,15	,20	1,000	-,39	,68
		Greek	,51	,19	,051	-1,49E-03	1,02
		Japanese	-,26	,20	1,000	-,80	,28
someone suggests I should	English	Greek	,51	,18	,031	2,97E-02	,99
		Japanese	4,69E-02	,19	1,000	-,45	,55
		American	,23	,18	1,000	-,25	,71
	Greek	English	-,51	,18	,031	-,99	-2,97E-02
		Japanese	-,46	,18	,068	-,94	1,98E-02
		American	-,28	,17	,666	-,74	,18
	Japanese	English	-4,69E-02	,19	1,000	-,55	,45
		Greek	,46	,18	,068	-1,98E-02	,94
		American	,18	,18	1,000	-,30	,67
	American	English	-,23	,18	1,000	-,71	,25
		Greek	,28	,17	,666	-,18	,74
		Japanese	-,18	,18	1,000	-,67	,30
type of music	English	Greek	,11	,19	1,000	-,38	,60
		Japanese	-,40	,19	,226	-,92	,11
		American	-,28	,19	,803	-,77	,21
	Greek	English	-,11	,19	1,000	-,60	,38
		Japanese	-,51	,19	,037	-1,01	-1,93E-02
		American	-,39	,18	,178	-,86	8,37E-02
	Japanese	English	,40	,19	,226	-,11	,92
		Greek	,51	,19	,037	1,93E-02	1,01
		American	,12	,19	1,000	-,37	,62
	American	English	,28	,19	,803	-,21	,77
		Greek	,39	,18	,178	-8,37E-02	,86
		Japanese	-,12	,19	1,000	-,62	,37
subject I am studying	English	Greek	,28	,19	,802	-,21	,77
		Japanese	-,63	,19	,008	-1,14	-,11
		American	-,21	,19	1,000	-,70	,28
	Greek	English	-,28	,19	,802	-,77	,21
		Japanese	-,90	,19	,000	-1,40	-,41
		American	-,49	,18	,038	-,96	-1,60E-02
	Japanese	English	,63	,19	,008	,11	1,14
		Greek	,90	,19	,000	,41	1,40
		American	,42	,19	,161	-8,05E-02	,91
	American	English	,21	,19	1,000	-,28	,70
		Greek	,49	,18	,038	1,60E-02	,96
		Japanese	-,42	,19	,161	-,91	8,05E-02
nature of	English	Greek	,13	,18	1,000	-,34	,61

the subject							
		Japanese	-,63	,19	,005	-1,12	-,13
		American	-,30	,18	,576	-,78	,18
	Greek	English	-,13	,18	1,000	-,61	,34
		Japanese	-,76	,18	,000	-1,24	-,28
		American	-,43	,17	,073	-,89	2,26E-02
	Japanese	English	,63	,19	,005	,13	1,12
		Greek	,76	,18	,000	,28	1,24
		American	,33	,18	,429	-,15	,81
	American	English	,30	,18	,576	-,18	,78
		Greek	,43	,17	,073	-2,26E-02	,89
		Japanese	-,33	,18	,429	-,81	,15
mood I am in	English	Greek	,38	,18	,199	-9,08E-02	,85
		Japanese	-4,29E-02	,19	1,000	-,53	,45
		American	-,38	,18	,207	-,85	9,42E-02
	Greek	English	-,38	,18	,199	-,85	9,08E-02
		Japanese	-,42	,18	,110	-,89	5,05E-02
		American	-,75	,17	,000	-1,21	-,30
	Japanese	English	4,29E-02	,19	1,000	-,45	,53
		Greek	,42	,18	,110	-5,05E-02	,89
		American	-,33	,18	,374	-,81	,14
	American	English	,38	,18	,207	-9,42E-02	,85
		Greek	,75	,17	,000	,30	1,21
		Japanese	,33	,18	,374	-,14	,81

Based on observed means.

* The mean difference is significant at the ,05 level.

AGE
Multiple Comparisons
Bonferroni

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
listening in free time	12-13	16-17	,49	,11	,000	,24	,75
		20-21	,45	,10	,000	,20	,70
	16-17	12-13	-,49	,11	,000	-,75	-,24
		20-21	-4,38E-02	,11	1,000	-,30	,21
	20-21	12-13	-,45	,10	,000	-,70	-,20
		16-17	4,38E-02	,11	1,000	-,21	,30
listening as a child	12-13	16-17	,30	,11	,025	2,79E-02	,58
		20-21	,38	,11	,002	,12	,65
	16-17	12-13	-,30	,11	,025	-,58	-2,79E-02
		20-21	7,81E-02	,12	1,000	-,20	,36
	20-21	12-13	-,38	,11	,002	-,65	-,12
		16-17	-7,81E-02	,12	1,000	-,36	,20
when waking up	12-13	16-17	,98	,17	,000	,57	1,39
		20-21	1,36	,16	,000	,96	1,75
	16-17	12-13	-,98	,17	,000	-1,39	-,57
		20-21	,38	,17	,083	-3,35E-02	,79
	20-21	12-13	-1,36	,16	,000	-1,75	-,96
		16-17	-,38	,17	,083	-,79	3,35E-02
when going to sleep	12-13	16-17	,80	,15	,000	,43	1,17
		20-21	,41	,15	,020	4,91E-02	,77
	16-17	12-13	-,80	,15	,000	-1,17	-,43
		20-21	-,39	,16	,040	-,76	-1,31E-02
	20-21	12-13	-,41	,15	,020	-,77	-4,91E-02
		16-17	,39	,16	,040	1,31E-02	,76
listening at home in the morning	12-13	16-17	,53	,16	,002	,15	,90
		20-21	,62	,15	,000	,26	,98
	16-17	12-13	-,53	,16	,002	-,90	-,15
		20-21	9,37E-02	,16	1,000	-,28	,47
	20-21	12-13	-,62	,15	,000	-,98	-,26
		16-17	-9,37E-02	,16	1,000	-,47	,28
listening at home in the evening	12-13	16-17	,25	,13	,207	-7,81E-02	,57
		20-21	-,19	,13	,449	-,50	,12
	16-17	12-13	-,25	,13	,207	-,57	7,81E-02
		20-21	-,43	,14	,005	-,76	-,11

	20-21	12-13	,19	,13	,449	-,12	,50
		16-17	,43	,14	,005	,11	,76
eating	12-13	16-17	,39	,14	,022	4,24E-02	,74
		20-21	,61	,14	,000	,28	,95
	16-17	12-13	-,39	,14	,022	-,74	-4,24E-02
		20-21	,22	,15	,387	-,13	,57
	20-21	12-13	-,61	,14	,000	-,95	-,28
		16-17	-,22	,15	,387	-,57	,13
taking a bath	12-13	16-17	,49	,17	,014	7,78E-02	,91
		20-21	,73	,17	,000	,33	1,14
	16-17	12-13	-,49	,17	,014	-,91	-7,78E-02
		20-21	,24	,18	,526	-,18	,66
	20-21	12-13	-,73	,17	,000	-1,14	-,33
		16-17	-,24	,18	,526	-,66	,18
travelling	12-13	16-17	,12	,15	1,000	-,23	,48
		20-21	8,82E-02	,14	1,000	-,26	,43
	16-17	12-13	-,12	,15	1,000	-,48	,23
		20-21	-3,65E-02	,15	1,000	-,40	,32
	20-21	12-13	-8,82E-02	,14	1,000	-,43	,26
		16-17	3,65E-02	,15	1,000	-,32	,40
studying	12-13	16-17	,25	,16	,377	-,14	,63
		20-21	,19	,16	,688	-,19	,56
	16-17	12-13	-,25	,16	,377	-,63	,14
		20-21	-5,98E-02	,16	1,000	-,45	,33
	20-21	12-13	-,19	,16	,688	-,56	,19
		16-17	5,98E-02	,16	1,000	-,33	,45
revising for exams	12-13	16-17	,47	,16	,009	9,25E-02	,85
		20-21	,60	,15	,000	,23	,96
	16-17	12-13	-,47	,16	,009	-,85	-9,25E-02
		20-21	,13	,16	1,000	-,25	,51
	20-21	12-13	-,60	,15	,000	-,96	-,23
		16-17	-,13	,16	1,000	-,51	,25
writing	12-13	16-17	,51	,16	,005	,12	,90
		20-21	,24	,16	,366	-,13	,62
	16-17	12-13	-,51	,16	,005	-,90	-,12
		20-21	-,27	,16	,298	-,66	,12
	20-21	12-13	-,24	,16	,366	-,62	,13
		16-17	,27	,16	,298	-,12	,66
memorizing texts	12-13	16-17	,16	,14	,754	-,17	,49
		20-21	,18	,13	,533	-,14	,50
	16-17	12-13	-,16	,14	,754	-,49	,17
		20-21	2,14E-02	,14	1,000	-,31	,36
	20-21	12-13	-,18	,13	,533	-,50	,14
		16-17	-2,14E-02	,14	1,000	-,36	,31
reading	12-13	16-17	,10	,15	1,000	-,27	,47
		20-21	5,40E-02	,15	1,000	-,30	,41
	16-17	12-13	-,10	,15	1,000	-,47	,27
		20-21	-4,62E-02	,16	1,000	-,42	,33
	20-21	12-13	-5,40E-02	,15	1,000	-,41	,30
		16-17	4,62E-02	,16	1,000	-,33	,42
doing	12-13	16-17	,52	,16	,003	,14	,91

course work							
		20-21	,38	,15	,041	1,07E-02	,75
	16-17	12-13	-,52	,16	,003	-,91	-,14
		20-21	-,14	,16	1,000	-,53	,24
	20-21	12-13	-,38	,15	,041	-,75	-1,07E-02
		16-17	,14	,16	1,000	-,24	,53
editing work previously completed	12-13	16-17	,26	,16	,287	-,12	,64
		20-21	,32	,15	,108	-4,56E-02	,68
	16-17	12-13	-,26	,16	,287	-,64	,12
		20-21	5,65E-02	,16	1,000	-,32	,44
	20-21	12-13	-,32	,15	,108	-,68	4,56E-02
		16-17	-5,65E-02	,16	1,000	-,44	,32
solving problems	12-13	16-17	,46	,16	,013	7,33E-02	,84
		20-21	-,12	,15	1,000	-,49	,25
	16-17	12-13	-,46	,16	,013	-,84	-7,33E-02
		20-21	-,58	,16	,001	-,96	-,19
	20-21	12-13	,12	,15	1,000	-,25	,49
		16-17	,58	,16	,001	,19	,96
developing ideas	12-13	16-17	,40	,16	,033	2,26E-02	,77
		20-21	,26	,15	,237	-9,65E-02	,62
	16-17	12-13	-,40	,16	,033	-,77	-2,26E-02
		20-21	-,13	,16	1,000	-,51	,24
	20-21	12-13	-,26	,15	,237	-,62	9,65E-02
		16-17	,13	,16	1,000	-,24	,51
thinking	12-13	16-17	,74	,16	,000	,36	1,11
		20-21	,45	,15	,009	8,87E-02	,82
	16-17	12-13	-,74	,16	,000	-1,11	-,36
		20-21	-,28	,16	,231	-,66	,10
	20-21	12-13	-,45	,15	,009	-,82	-8,87E-02
		16-17	,28	,16	,231	-,10	,66
helps concentrat e	12-13	16-17	,17	,16	,805	-,20	,55
		20-21	-,26	,15	,255	-,63	,10
	16-17	12-13	-,17	,16	,805	-,55	,20
		20-21	-,44	,16	,019	-,82	-5,52E-02
	20-21	12-13	,26	,15	,255	-,10	,63
		16-17	,44	,16	,019	5,52E-02	,82
keeps company	12-13	16-17	,29	,14	,103	-3,91E-02	,63
		20-21	,29	,13	,089	-2,96E-02	,61
	16-17	12-13	-,29	,14	,103	-,63	3,91E-02
		20-21	-1,95E-03	,14	1,000	-,34	,33
	20-21	12-13	-,29	,13	,089	-,61	2,96E-02
		16-17	1,95E-03	,14	1,000	-,33	,34
alleviates boredom	12-13	16-17	,22	,13	,239	-8,17E-02	,53
		20-21	,10	,12	1,000	-,19	,40

	16-17	12-13	-,22	,13	,239	-,53	8,17E-02
		20-21	-,12	,13	1,000	-,43	,19
	20-21	12-13	-,10	,12	1,000	-,40	,19
		16-17	,12	,13	1,000	-,19	,43
relaxes me	12-13	16-17	,22	,12	,190	-6,45E-02	,51
		20-21	,19	,12	,286	-8,43E-02	,47
	16-17	12-13	-,22	,12	,190	-,51	6,45E-02
		20-21	-2,96E-02	,12	1,000	-,32	,26
	20-21	12-13	-,19	,12	,286	-,47	8,43E-02
		16-17	2,96E-02	,12	1,000	-,26	,32
helps me learn faster	12-13	16-17	,27	,15	,239	-9,94E-02	,64
		20-21	-,20	,15	,562	-,55	,16
	16-17	12-13	-,27	,15	,239	-,64	9,94E-02
		20-21	-,47	,16	,008	-,84	-9,37E-02
	20-21	12-13	,20	,15	,562	-,16	,55
		16-17	,47	,16	,008	9,37E-02	,84
interferes so I can't concentrat e	12-13	16-17	3,75E-04	,16	1,000	-,37	,38
		20-21	,69	,15	,000	,32	1,05
	16-17	12-13	-3,75E-04	,16	1,000	-,38	,37
		20-21	,69	,16	,000	,31	1,07
	20-21	12-13	-,69	,15	,000	-1,05	-,32
		16-17	-,69	,16	,000	-1,07	-,31
interferes because I sing along	12-13	16-17	,28	,17	,276	-,12	,68
		20-21	,36	,16	,079	-2,81E-02	,75
	16-17	12-13	-,28	,17	,276	-,68	,12
		20-21	7,75E-02	,17	1,000	-,33	,48
	20-21	12-13	-,36	,16	,079	-,75	2,81E-02
		16-17	-7,75E-02	,17	1,000	-,48	,33
interferes because it makes me too aroused	12-13	16-17	-,11	,14	1,000	-,45	,24
		20-21	-2,37E-02	,14	1,000	-,36	,31
	16-17	12-13	,11	,14	1,000	-,24	,45
		20-21	8,40E-02	,14	1,000	-,26	,43
	20-21	12-13	2,37E-02	,14	1,000	-,31	,36
		16-17	-8,40E-02	,14	1,000	-,43	,26
listen with my favourite subject	12-13	16-17	,16	,16	,963	-,23	,56
		20-21	-,19	,16	,697	-,57	,19
	16-17	12-13	-,16	,16	,963	-,56	,23
		20-21	-,35	,17	,101	-,75	4,53E-02
	20-21	12-13	,19	,16	,697	-,19	,57
		16-17	,35	,17	,101	-4,53E-02	,75

listen with least favourite subject	12-13	16-17	,32	,17	,190	-9,21E-02	,73
		20-21	-4,12E-02	,16	1,000	-,44	,35
	16-17	12-13	-,32	,17	,190	-,73	9,21E-02
		20-21	-,36	,17	,113	-,77	5,46E-02
	20-21	12-13	4,12E-02	,16	1,000	-,35	,44
		16-17	,36	,17	,113	-5,46E-02	,77
learning a foreign language	12-13	16-17	,11	,14	1,000	-,23	,45
		20-21	-,28	,14	,133	-,61	5,32E-02
	16-17	12-13	-,11	,14	1,000	-,45	,23
		20-21	-,39	,14	,022	-,73	-4,16E-02
	20-21	12-13	,28	,14	,133	-5,32E-02	,61
		16-17	,39	,14	,022	4,16E-02	,73
listen to my favourite music	12-13	16-17	,20	,17	,761	-,22	,62
		20-21	-,19	,17	,775	-,60	,21
	16-17	12-13	-,20	,17	,761	-,62	,22
		20-21	-,39	,18	,082	-,81	3,29E-02
	20-21	12-13	,19	,17	,775	-,21	,60
		16-17	,39	,18	,082	-3,29E-02	,81
songs that I know	12-13	16-17	,13	,17	1,000	-,28	,54
		20-21	-,15	,16	1,000	-,54	,25
	16-17	12-13	-,13	,17	1,000	-,54	,28
		20-21	-,27	,17	,328	-,69	,14
	20-21	12-13	,15	,16	1,000	-,25	,54
		16-17	,27	,17	,328	-,14	,69
music with fast tempo	12-13	16-17	-,26	,16	,343	-,65	,13
		20-21	-,31	,16	,150	-,69	6,91E-02
	16-17	12-13	,26	,16	,343	-,13	,65
		20-21	-5,15E-02	,16	1,000	-,45	,34
	20-21	12-13	,31	,16	,150	-6,91E-02	,69
		16-17	5,15E-02	,16	1,000	-,34	,45
music with slow tempo	12-13	16-17	2,42E-02	,15	1,000	-,35	,40
		20-21	9,40E-02	,15	1,000	-,27	,45
	16-17	12-13	-2,42E-02	,15	1,000	-,40	,35
		20-21	6,98E-02	,16	1,000	-,31	,45
	20-21	12-13	-9,40E-02	,15	1,000	-,45	,27
		16-17	-6,98E-02	,16	1,000	-,45	,31
songs	12-13	16-17	-1,13E-02	,17	1,000	-,42	,40
		20-21	-,22	,16	,526	-,61	,17
	16-17	12-13	1,13E-02	,17	1,000	-,40	,42
		20-21	-,21	,17	,654	-,62	,20
	20-21	12-13	,22	,16	,526	-,17	,61
		16-17	,21	,17	,654	-,20	,62

loud music	12-13	16-17	4,31E-02	,17	1,000	-,36	,45
		20-21	-,29	,16	,222	-,68	9,94E-02
	16-17	12-13	-4,31E-02	,17	1,000	-,45	,36
		20-21	-,33	,17	,149	-,74	7,38E-02
	20-21	12-13	,29	,16	,222	-9,94E-02	,68
		16-17	,33	,17	,149	-7,38E-02	,74
instrumetn al music	12-13	16-17	,35	,14	,037	1,48E-02	,69
		20-21	,35	,13	,031	2,28E-02	,67
	16-17	12-13	-,35	,14	,037	-,69	-1,48E-02
		20-21	-3,56E-03	,14	1,000	-,34	,33
	20-21	12-13	-,35	,13	,031	-,67	-2,28E-02
		16-17	3,56E-03	,14	1,000	-,33	,34
calming music	12-13	16-17	8,68E-02	,15	1,000	-,27	,45
		20-21	5,75E-02	,15	1,000	-,29	,41
	16-17	12-13	-8,68E-02	,15	1,000	-,45	,27
		20-21	-2,94E-02	,15	1,000	-,39	,34
	20-21	12-13	-5,75E-02	,15	1,000	-,41	,29
		16-17	2,94E-02	,15	1,000	-,34	,39
arousing music	12-13	16-17	-,12	,15	1,000	-,49	,24
		20-21	-9,34E-02	,15	1,000	-,45	,26
	16-17	12-13	,12	,15	1,000	-,24	,49
		20-21	3,11E-02	,15	1,000	-,34	,40
	20-21	12-13	9,34E-02	,15	1,000	-,26	,45
		16-17	-3,11E-02	,15	1,000	-,40	,34
recorded music	12-13	16-17	,29	,17	,249	-,11	,69
		20-21	4,92E-02	,16	1,000	-,34	,44
	16-17	12-13	-,29	,17	,249	-,69	,11
		20-21	-,24	,17	,460	-,65	,16
	20-21	12-13	-4,92E-02	,16	1,000	-,44	,34
		16-17	,24	,17	,460	-,16	,65
happy	12-13	16-17	,29	,17	,250	-,11	,68
		20-21	-,21	,16	,554	-,60	,17
	16-17	12-13	-,29	,17	,250	-,68	,11
		20-21	-,50	,17	,009	-,90	-9,82E-02
	20-21	12-13	,21	,16	,554	-,17	,60
		16-17	,50	,17	,009	9,82E-02	,90
bored	12-13	16-17	-,17	,17	,974	-,57	,24
		20-21	-,19	,16	,736	-,58	,20
	16-17	12-13	,17	,17	,974	-,24	,57
		20-21	-2,32E-02	,17	1,000	-,43	,38
	20-21	12-13	,19	,16	,736	-,20	,58
		16-17	2,32E-02	,17	1,000	-,38	,43
like the subject	12-13	16-17	,12	,17	1,000	-,27	,52
		20-21	-2,32E-02	,16	1,000	-,41	,36
	16-17	12-13	-,12	,17	1,000	-,52	,27
		20-21	-,15	,17	1,000	-,55	,25
	20-21	12-13	2,32E-02	,16	1,000	-,36	,41
		16-17	,15	,17	1,000	-,25	,55
dislike the	12-13	16-17	,24	,17	,495	-,17	,65

subject							
		20-21	4,60E-02	,16	1,000	-,35	,44
	16-17	12-13	-,24	,17	,495	-,65	,17
		20-21	-,19	,17	,801	-,61	,22
	20-21	12-13	-4,60E-02	,16	1,000	-,44	,35
		16-17	,19	,17	,801	-,22	,61
disturbed by other noises	12-13	16-17	-,36	,17	,110	-,77	5,24E-02
		20-21	-,28	,16	,272	-,68	,12
	16-17	12-13	,36	,17	,110	-5,24E-02	,77
		20-21	7,81E-02	,17	1,000	-,34	,49
	20-21	12-13	,28	,16	,272	-,12	,68
		16-17	-7,81E-02	,17	1,000	-,49	,34
can't concentrat e	12-13	16-17	,24	,16	,389	-,14	,63
		20-21	,51	,15	,003	,14	,89
	16-17	12-13	-,24	,16	,389	-,63	,14
		20-21	,27	,16	,280	-,12	,66
	20-21	12-13	-,51	,15	,003	-,89	-,14
		16-17	-,27	,16	,280	-,66	,12
makes me nervous	12-13	16-17	,25	,18	,530	-,19	,69
		20-21	,47	,18	,025	4,48E-02	,90
	16-17	12-13	-,25	,18	,530	-,69	,19
		20-21	,22	,19	,692	-,22	,67
	20-21	12-13	-,47	,18	,025	-,90	-4,48E-02
		16-17	-,22	,19	,692	-,67	,22
unable to learn	12-13	16-17	,22	,18	,657	-,21	,64
		20-21	,77	,17	,000	,37	1,18
	16-17	12-13	-,22	,18	,657	-,64	,21
		20-21	,56	,18	,005	,13	,98
	20-21	12-13	-,77	,17	,000	-1,18	-,37
		16-17	-,56	,18	,005	-,98	-,13
someone suggests I should	12-13	16-17	-,58	,16	,001	-,96	-,21
		20-21	-,47	,15	,006	-,84	-,11
	16-17	12-13	,58	,16	,001	,21	,96
		20-21	,11	,16	1,000	-,27	,49
	20-21	12-13	,47	,15	,006	,11	,84
		16-17	-,11	,16	1,000	-,49	,27
type of music	12-13	16-17	,18	,16	,829	-,22	,57
		20-21	4,02E-02	,16	1,000	-,34	,42
	16-17	12-13	-,18	,16	,829	-,57	,22
		20-21	-,14	,17	1,000	-,54	,26
	20-21	12-13	-4,02E-02	,16	1,000	-,42	,34
		16-17	,14	,17	1,000	-,26	,54
subject I am studying	12-13	16-17	,51	,17	,007	,11	,90

		20-21	8,20E-02	,16	1,000	-,30	,47
	16-17	12-13	-,51	,17	,007	-,90	-,11
		20-21	-,42	,17	,034	-,82	-2,36E-02
	20-21	12-13	-8,20E-02	,16	1,000	-,47	,30
		16-17	,42	,17	,034	2,36E-02	,82
nature of the subject	12-13	16-17	,67	,16	,000	,30	1,05
		20-21	,17	,15	,776	-,19	,54
	16-17	12-13	-,67	,16	,000	-1,05	-,30
		20-21	-,50	,16	,005	-,88	-,12
	20-21	12-13	-,17	,15	,776	-,54	,19
		16-17	,50	,16	,005	,12	,88
mood I am in	12-13	16-17	,28	,16	,240	-,10	,65
		20-21	-4,86E-02	,15	1,000	-,41	,32
	16-17	12-13	-,28	,16	,240	-,65	,10
		20-21	-,32	,16	,124	-,71	5,70E-02
	20-21	12-13	4,86E-02	,15	1,000	-,32	,41
		16-17	,32	,16	,124	-5,70E-02	,71

Based on observed means.
* The mean difference is significant at the ,05 level.

NATION BY AGE

		Type III sum of Squares	df	Mean Square	F	Sig
NATIONALITY * AGE	listening in free time	6.448	2	3.224	5.526	.005
	listening as a child	2.403	2	1.202	1.488	.228
	when waking up	40.762	2	20.381	10.796	.000
	when going to sleep	13.626	2	6.813	3.957	.021
	listening at home in the morning	27.814	2	13.907	10.388	.000
	listening at home in the evening	22.820	2	11.410	10.996	.000
	eating	12.764	2	6.382	5.061	.007
	taking a bath	24.073	2	12.037	5.834	.003
	travelling	.358	2	.179	.186	.831
	studying	2.321	2	1.161	.640	.528
	revising for exams	3.548	2	1.774	1.001	.369
	writing	18.681	2	9.340	6.078	.003
	memorizing texts	.426	2	.213	.131	.877
	reading	16.495	2	8.248	5.099	.007
	doing course work	12.915	2	6.458	3.804	.024
	editing work previously completed	8.888	2	4.444	2.808	.063
	solving problems	3.768	2	1.884	1.060	.348
	developing ideas	6.277	2	3.139	1.904	.152
	thinking	9.571	2	4.785	3.532	.031
	helps concentrate	13.094	2	6.547	4.173	.017
	keeps company	11.203	2	5.601	4.682	.010
	alleviates boredom	21.807	2	10.903	11.209	.000
	relaxes me	.696	2	.348	.386	.680
	helps me learn faster	2.090	2	1.045	.669	.513
	interferes so I can't concentrate	5.574E-02	2	2.787E-02	.018	.982
	interferes because I sing along	12.757	2	6.379	3.491	.032
	interferes because it makes me too aroused	7.394	2	3.697	2.523	.083
	listen with my favourite subject	3.019	2	1.509	.895	.410
	listen with least favourite subject	7.717	2	3.859	2.061	.130
	learning a foreign language	4.344	2	2.172	1.880	.155
	listen to my favourite music	20.805	2	10.403	5.498	.005
	songs that I know	11.485	2	5.742	3.163	.044
	music with fast tempo	3.047	2	1.524	.905	.406
	music with slow tempo	5.668	2	2.834	1.978	.141
	songs	11.847	2	5.923	3.343	.037
	loud music	9.154	2	4.577	2.517	.083
	instrumental music	8.626	2	4.313	2.854	.060
	calming music	1.839	2	.920	.535	.587
	arousing music	16.239	2	8.120	5.827	.003
	classical	16.152	2	8.076	6.497	.002
	rock	44.812	2	22.406	13.379	.000
	blues	12.824	2	6.412	6.745	.001
	country	20.985	2	10.493	7.439	.001
	easy listening	.472	2	.236	.171	.843
	folk/world music	5.727	2	2.864	3.016	.051
	reggae	5.314	2	2.657	2.161	.118

	pop	14.593	2	7.296	4.265	.015
	soul	4.900	2	2.450	1.721	.181
	dance	13.442	2	6.721	3.865	.022
	gospel	3.154	2	1.577	1.649	.195
	jazz	5.196	2	2.598	2.326	.100
	radio	16.396	2	8.198	4.188	.016
	recorded music	12.964	2	6.482	3.480	.033
	happy	15.448	2	7.724	4.432	.013
	bored	7.739	2	3.870	2.269	.106
	like the subject	11.974	2	5.987	3.235	.041
	dislike the subject	23.880	2	11.940	6.097	.003
	disturbed by other noises	9.062	2	4.531	2.254	.108
	can't concentrate	21.858	2	10.929	6.464	.002
	makes me nervous	4.380	2	2.190	1.050	.352
	unable to learn	27.675	2	13.837	6.717	.001
	someone suggests I should	7.945	2	3.973	2.404	.093
	type of music	11.105	2	5.552	3.061	.049
	subject I am studying	10.087	2	5.044	2.677	.071
	nature of the subject	8.050	2	4.025	2.204	.113
	mood I am in	14.734	2	7.367	4.270	.015

GENDER by NATIONALITY

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
GENDER * NATION	listening in free time	.834	1	.834	1.259	.263
	listening as a child	1.042	1	1.042	1.260	.263
	when waking up	2.851	1	2.851	1.335	.249
	when going to sleep	2.120	1	2.120	1.133	.288
	listening at home in the morning	4.929	1	4.929	3.248	.073
	listening at home in the evening	.106	1	.106	.091	.763
	eating	2.758	1	2.758	2.016	.157
	taking a bath	2.547E-03	1	2.547E-03	.001	.973
	travelling	.590	1	.590	.607	.437
	studying	1.689	1	1.689	.948	.331
	revising for exams	4.063	1	4.063	2.252	.135
	writing	1.131	1	1.131	.686	.409
	memorizing texts	8.668	1	8.668	5.450	.021
	reading	9.980	1	9.980	5.872	.016
	doing course work	12.256	1	12.256	6.829	.010
	editing work previously completed	6.571	1	6.571	3.984	.047
	solving problems	3.575	1	3.575	1.974	.161
	developing ideas	4.639	1	4.639	2.796	.096
	thinking	.856	1	.856	.602	.439
	helps concentrate	.619	1	.619	.359	.550
	keeps company	.103	1	.103	.080	.777
	alleviates boredom	.264	1	.264	.237	.627
	relaxes me	.288	1	.288	.314	.576
	helps me learn faster	2.405	1	2.405	1.416	.235
	interferes so I can't concentrate	7.035	1	7.035	4.105	.044
	interferes because I sing along	5.292	1	5.292	2.812	.095
	interferes because it makes me too aroused	2.764	1	2.764	1.817	.179
	listen with my favourite subject	5.536	1	5.536	3.052	.082
	listen with least favourite subject	5.161	1	5.161	2.570	.110
	learning a foreign language	4.785	1	4.785	3.862	.051
	listen to my favourite music	.613	1	.613	.288	.592
	songs that I know	1.336	1	1.336	.685	.409
	music with fast tempo	.281	1	.281	.150	.699
	music with slow tempo	8.232E-02	1	8.232E-02	.057	.812
	songs	.662	1	.662	.347	.557
	loud music	.193	1	.193	.094	.760
	instrumental music	2.209	1	2.209	1.429	.233
	calming music	.656	1	.656	.389	.533
	arousing music	2.091	1	2.091	1.371	.243
	classical	4.914E-02	1	4.914E-02	.038	.846
	rock	2.566	1	2.566	1.338	.249
	blues	1.622	1	1.622	1.598	.208
	country	6.451E-02	1	6.451E-02	.041	.840
	easy listening	3.859E-02	1	3.859E-02	.029	.865
	folk/world music	5.362E-02	1	5.362E-02	.056	.813
	reggae	.126	1	.126	.100	.752
	pop	3.059	1	3.059	1.620	.204
	soul	.276	1	.276	.186	.667

	dance	.167	1	.167	.090	.765
	gospel	.174	1	.174	.170	.681
	jazz	.784	1	.784	.672	.413
	radio	3.915	1	3.915	1.942	.165
	recorded music	.324	1	.324	.172	.679
	happy	1.699	1	1.699	.878	.350
	bored	3.201	1	3.201	1.708	.193
	like the subject	11.163	1	11.163	5.690	.018
	dislike the subject	8.634	1	8.634	4.163	.043
	disturbed by other noises	.579	1	.579	.277	.599
	can't concentrate	6.227	1	6.227	3.392	.067
	makes me nervous	.717	1	.717	.340	.560
	unable to learn	.799	1	.799	.333	.565
	someone suggests I should	.699	1	.699	.410	.522
	type of music	1.221E-03	1	1.221E-03	.001	.980
	subject I am studying	.415	1	.415	.210	.647
	nature of the subject	1.172	1	1.172	.621	.431
	mood I am in	.240	1	.240	.131	.718

GENDER BY AGE

		Type III sum of Squares	df	Mean Square	F	Sig
GENDER * AGE	listening in free time	11.995	2	5.997	10.280	.000
	listening as a child	3.699	2	1.849	2.290	.104
	when waking up	7.734	2	3.867	2.048	.132
	when going to sleep	5.298	2	2.649	1.539	.217
	listening at home in the morning	12.713	2	6.356	4.748	.010
	listening at home in the evening	6.316	2	3.158	3.044	.050
	eating	6.610	2	3.305	2.621	.075
	taking a bath	10.967	2	5.484	2.658	.073
	travelling	3.306	2	1.653	1.716	.182
	studying	.306	2	.153	.084	.919
	revising for exams	1.485	2	.742	.419	.658
	writing	7.354	2	3.677	2.393	.094
	memorizing texts	.238	2	.119	.073	.929
	reading	1.202	2	.601	.372	.690
	doing course work	3.266	2	1.633	.962	.384
	editing work previously completed	13.656	2	6.828	4.314	.015
	solving problems	2.185	2	1.092	.614	.542
	developing ideas	1.625	2	.813	.493	.611
	thinking	3.514	2	1.757	1.297	.276
	helps concentrate	2.695	2	1.347	.859	.425
	keeps company	4.687	2	2.343	1.959	.144
	alleviates boredom	12.509	2	6.255	6.430	.002
	relaxes me	5.589	2	2.794	3.098	.047
	helps me learn faster	9.211	2	4.606	2.949	.055
	interferes so I can't concentrate	3.420	2	1.710	1.093	.337
	interferes because I sing along	.713	2	.357	.195	.823
	interferes because it makes me too aroused	.709	2	.354	.242	.785
	listen with my favourite subject	12.388	2	6.194	3.674	.027
	listen with least favourite subject	3.156	2	1.578	.843	.432
	learning a foreign language	8.572	2	4.286	3.710	.026
	listen to my favourite music	11.651	2	5.825	3.079	.048
	songs that I know	3.544	2	1.772	.976	.379
	music with fast tempo	12.576	2	6.288	3.735	.026
	music with slow tempo	.945	2	.472	.330	.720
	songs	3.506	2	1.753	.989	.374
	loud music	5.023	2	2.512	1.381	.254
	instrumental music	9.814	2	4.907	3.248	.041
	calming music	2.041	2	1.021	.593	.553
	arousing music	6.157	2	3.078	2.209	.112
	classical	2.911	2	1.455	1.171	.312
	rock	2.966	2	1.483	.886	.414
	blues	3.134E-02	2	1.567E-02	.016	.984
	country	10.577	2	5.288	3.749	.025
	easy listening	.604	2	.302	.219	.803
	folk/world music	2.012	2	1.006	1.060	.348
	reggae	2.397	2	1.199	.975	.379
	pop	1.322	2	.661	.386	.680
	soul	4.205	2	2.102	1.477	.231

	dance	5.752	2	2.876	1.654	.194
	gospel	6.138	2	3.069	3.210	.042
	jazz	.245	2	.122	.110	.896
	radio	3.435	2	1.718	.877	.417
	recorded music	3.415	2	1.707	.917	.401
	happy	11.490	2	5.745	3.297	.039
	bored	8.312	2	4.156	2.437	.090
	like the subject	13.432	2	6.716	3.629	.028
	dislike the subject	6.755	2	3.378	1.725	.181
	disturbed by other noises	2.494	2	1.247	.620	.539
	can't concentrate	.891	2	.445	.263	.769
	makes me nervous	3.326	2	1.663	.797	.452
	unable to learn	.292	2	.146	.071	.932
	someone suggests I should	.655	2	.327	.198	.820
	type of music	4.320	2	2.160	1.191	.306
	subject I am studying	10.859	2	5.429	2.882	.058
	nature of the subject	11.239	2	5.619	3.076	.048
	mood I am in	5.826	2	2.913	1.688	.187

GENDER by NATIONALITY by AGE

		Type III sum of Squares	df	Mean Square	F	Sig
	listening in free time	1.524	2	.762	1.306	.273
	listening as a child	4.596	2	2.298	2.846	.060
	when waking up	.734	2	.367	.194	.824
	when going to sleep	8.869	2	4.435	2.576	.079
	listening at home in the morning	5.907	2	2.953	2.206	.113
	listening at home in the evening	1.649	2	.824	.795	.453
	eating	6.118	2	3.059	2.426	.091
	taking a bath	14.227	2	7.113	3.448	.034
	travelling	1.663	2	.831	.863	.423
	studying	.682	2	.341	.188	.828
	revising for exams	.160	2	7.998E-02	.045	.956
	writing	4.945	2	2.472	1.609	.203
	memorizing texts	.745	2	.373	.230	.795
	reading	7.075	2	3.537	2.187	.115
	doing course work	1.606	2	.803	.473	.624
	editing work previously completed	1.272	2	.636	.402	.670
	solving problems	3.614	2	1.807	1.016	.364
	developing ideas	2.082	2	1.041	.632	.533
	thinking	1.491E-02	2	7.457E-03	.006	.995
	helps concentrate	.939	2	.470	.299	.742
	keeps company	12.381	2	6.191	5.175	.006
	alleviates boredom	2.476	2	1.238	1.273	.282
	relaxes me	3.230	2	1.615	1.791	.169
	helps me learn faster	1.482	2	.741	.474	.623
	interferes so I can't concentrate	5.010	2	2.505	1.600	.204
	interferes because I sing along	5.811	2	2.905	1.590	.206
	interferes because it makes me too aroused	12.741	2	6.370	4.347	.014
	listen with my favourite subject	2.617	2	1.308	.776	.461
	listen with least favourite subject	4.800	2	2.400	1.282	.280
	learning a foreign language	2.248	2	1.124	.973	.380
	listen to my favourite music	1.711	2	.855	.452	.637
	songs that I know	1.732	2	.866	.477	.621
	music with fast tempo	3.273	2	1.637	.972	.380
	music with slow tempo	3.691	2	1.845	1.288	.278
	songs	2.392	2	1.196	.675	.510
	loud music	4.435	2	2.218	1.219	.298
	instrumental music	.743	2	.371	.246	.782
	calming music	1.449	2	.725	.421	.657
	arousing music	7.687	2	3.843	2.758	.066
	classical	2.235	2	1.118	.899	.408
	rock	6.538	2	3.269	1.952	.145
	blues	5.098	2	2.549	2.681	.071
	country	7.562	2	3.781	2.681	.071
	easy listening	1.879	2	.940	.682	.507
	folk/world music	.442	2	.221	.233	.793
	reggae	2.573	2	1.287	1.046	.353
	pop	.326	2	.163	.095	.909
	soul	9.543	2	4.772	3.352	.037
	dance	2.501	2	1.250	.719	.488

	gospel	3.075	2	1.537	1.608	.203
	jazz	1.905	2	.953	.853	.428
	radio	1.107	2	.553	.283	.754
	recorded music	1.122	2	.561	.301	.740
	happy	2.495	2	1.248	.716	.490
	bored	9.457E-02	2	4.729E-02	.028	.973
	like the subject	6.090	2	3.045	1.645	.196
	dislike the subject	.805	2	.403	.206	.814
	disturbed by other noises	1.103	2	.551	.274	.760
	can't concentrate	4.332	2	2.166	1.281	.280
	makes me nervous	9.551	2	4.776	2.290	.104
	unable to learn	22.432	2	11.216	5.444	.005
	someone suggests I should	5.137	2	2.568	1.554	.214
	type of music	.806	2	.403	.222	.801
	subject I am studying	.262	2	.131	.070	.933
	nature of the subject	3.024	2	1.512	.828	.439
	mood I am in	5.061	2	2.531	1.467	.233

Report

gender	nationality	Age		listening in free time	listening as a child	when waking up	when going to sleep	listening at home in the morning
male	English	12-13	Mean	2,86	2,57	4,07	3,39	3,64
			N	28	28	28	28	28
			Std. Deviation	1,08	1,14	1,15	1,59	1,39
		16-17	Mean	2,14	2,57	3,18	2,82	3,14
			N	22	21	22	22	22
			Std. Deviation	,89	1,12	1,33	1,30	1,36
		20-21	Mean	1,50	2,00	2,00	2,64	1,86
			N	22	22	22	22	22
			Std. Deviation	,60	,69	1,02	1,18	,83
		Total	Mean	2,22	2,39	3,17	2,99	2,94
			N	72	71	72	72	72
			Std. Deviation	1,05	1,03	1,44	1,41	1,43
	Greek	12-13	Mean	2,63	2,96	4,52	3,89	3,31
			N	27	25	25	27	26
			Std. Deviation	1,04	1,31	,96	1,28	1,44
		16-17	Mean	1,77	2,39	3,10	2,45	2,48
			N	31	31	31	31	31
			Std. Deviation	,80	,88	1,42	1,23	1,21
		20-21	Mean	1,71	2,00	1,95	2,67	2,33
			N	21	20	21	21	21
			Std. Deviation	,64	,65	1,16	1,11	,91
		Total	Mean	2,05	2,47	3,25	3,00	2,72
			N	79	76	77	79	78
			Std. Deviation	,95	1,05	1,57	1,37	1,28
	Japanese	12-13	Mean	2,50	2,71	4,21	3,33	3,75
			N	24	24	24	24	24
			Std. Deviation	,98	1,16	1,18	1,43	1,39
		16-17	Mean	2,31	2,69	3,71	3,08	3,84
			N	26	26	24	26	25
			Std. Deviation	1,05	,88	1,57	1,44	1,31
		20-21	Mean	2,04	2,52	2,68	2,55	2,55
			N	23	23	22	22	22
			Std. Deviation	,93	,99	1,52	1,22	1,41
		Total	Mean	2,29	2,64	3,56	3,00	3,41
			N	73	73	70	72	71
			Std. Deviation	,99	1,01	1,55	1,39	1,47
	American	12-13	Mean	2,25	2,42	2,50	2,71	2,58
			N	24	24	24	24	24
			Std. Deviation	,61	,72	1,41	1,40	1,10
		16-17	Mean	1,89	2,46	2,81	2,43	2,19
			N	28	28	27	28	27
			Std. Deviation	,96	,92	1,62	1,53	1,36
		20-21	Mean	2,08	2,38	2,71	3,37	2,96
			N	24	24	24	24	24
			Std. Deviation	,88	,77	1,46	1,28	1,16
		Total	Mean	2,07	2,42	2,68	2,82	2,56
			N	76	76	75	76	75
			Std. Deviation	,84	,80	1,49	1,45	1,24

Report

gender	nationality	Age		listening in free time	listening as a child	when waking up	when going to sleep	listening at home in the morning
male	Total	12-13	Mean	2,57	2,66	3,84	3,35	3,33
			N	103	101	101	103	102
			Std. Deviation	,97	1,11	1,40	1,47	1,40
		16-17	Mean	2,01	2,52	3,18	2,67	2,87
			N	107	106	104	107	105
			Std. Deviation	,94	,94	1,51	1,39	1,43
		20-21	Mean	1,84	2,24	2,35	2,82	2,44
			N	90	89	89	89	89
			Std. Deviation	,81	,81	1,34	1,23	1,16
		Total	Mean	2,15	2,48	3,16	2,95	2,90
			N	300	296	294	299	296
			Std. Deviation	,96	,98	1,54	1,40	1,39
female	English	12-13	Mean	1,55	1,77	3,23	2,90	2,24
			N	22	22	22	21	21
			Std. Deviation	,74	1,11	1,31	1,45	1,14
		16-17	Mean	1,86	2,04	2,44	2,30	2,68
			N	28	27	27	27	28
			Std. Deviation	,85	1,13	1,40	1,35	1,33
		20-21	Mean	1,82	2,43	2,00	2,75	2,19
			N	28	28	28	28	27
			Std. Deviation	,61	,92	1,19	1,00	1,04
		Total	Mean	1,76	2,10	2,51	2,63	2,38
			N	78	77	77	76	76
			Std. Deviation	,74	1,07	1,37	1,27	1,19
	Greek	12-13	Mean	2,13	2,50	4,12	3,17	3,12
			N	24	24	24	24	24
			Std. Deviation	1,03	,98	1,30	1,52	1,51
		16-17	Mean	1,41	1,67	2,24	2,23	1,86
			N	22	21	21	22	21
			Std. Deviation	,50	,66	1,09	1,15	1,01
		20-21	Mean	1,64	1,76	1,92	2,32	2,08
			N	25	25	24	25	25
			Std. Deviation	,49	,66	1,14	1,14	,81
		Total	Mean	1,73	1,99	2,78	2,58	2,37
			N	71	70	69	71	70
			Std. Deviation	,77	,86	1,53	1,34	1,26
	Japanese	12-13	Mean	2,73	3,00	4,15	3,62	3,58
			N	26	26	26	26	26
			Std. Deviation	1,12	,98	1,08	1,13	1,47
		16-17	Mean	2,13	2,42	4,00	3,04	4,00
			N	24	24	24	24	24
			Std. Deviation	,99	1,18	1,38	1,20	1,25
		20-21	Mean	2,26	2,74	3,52	2,89	3,41
			N	27	27	27	27	27
			Std. Deviation	,76	,76	1,34	1,34	1,31
		Total	Mean	2,38	2,73	3,88	3,18	3,65
			N	77	77	77	77	77
			Std. Deviation	,99	1,00	1,29	1,25	1,35

Report

gender	nationality	Age		listening in free time	listening as a child	when waking up	when going to sleep	listening at home in the morning
female	American	12-13	Mean	1,50	2,31	2,24	2,38	2,23
			N	26	26	25	26	26
			Std. Deviation	,65	1,01	1,45	1,39	1,27
		16-17	Mean	1,77	2,45	2,00	2,14	1,86
			N	22	22	22	22	21
			Std. Deviation	,87	1,10	1,48	1,25	1,11
		20-21	Mean	2,12	2,12	2,69	3,54	2,85
			N	26	25	26	26	26
			Std. Deviation	,77	,88	1,54	1,27	1,08
		Total	Mean	1,80	2,29	2,33	2,72	2,34
			N	74	73	73	74	73
			Std. Deviation	,79	,99	1,50	1,43	1,22
	Total	12-13	Mean	1,99	2,42	3,44	3,02	2,81
			N	98	98	97	97	97
			Std. Deviation	1,03	1,09	1,50	1,43	1,47
		16-17	Mean	1,80	2,15	2,69	2,43	2,65
			N	96	94	94	95	94
			Std. Deviation	,85	1,08	1,55	1,28	1,46
		20-21	Mean	1,96	2,28	2,54	2,88	2,64
			N	106	105	105	106	105
			Std. Deviation	,70	,88	1,45	1,26	1,19
		Total	Mean	1,92	2,28	2,89	2,78	2,70
			N	300	297	296	298	296
			Std. Deviation	,87	1,02	1,54	1,34	1,37
Total	English	12-13	Mean	2,28	2,22	3,70	3,18	3,04
			N	50	50	50	49	49
			Std. Deviation	1,14	1,18	1,28	1,54	1,46
		16-17	Mean	1,98	2,27	2,78	2,53	2,88
			N	50	48	49	49	50
			Std. Deviation	,87	1,14	1,40	1,34	1,35
		20-21	Mean	1,68	2,24	2,00	2,70	2,04
			N	50	50	50	50	49
			Std. Deviation	,62	,85	1,11	1,07	,96
		Total	Mean	1,98	2,24	2,83	2,80	2,66
			N	150	148	149	148	148
			Std. Deviation	,93	1,06	1,44	1,35	1,34
	Greek	12-13	Mean	2,39	2,73	4,33	3,55	3,22
			N	51	49	49	51	50
			Std. Deviation	1,06	1,17	1,14	1,43	1,46
		16-17	Mean	1,62	2,10	2,75	2,36	2,23
			N	53	52	52	53	52
			Std. Deviation	,71	,87	1,36	1,19	1,17
		20-21	Mean	1,67	1,87	1,93	2,48	2,20
			N	46	45	45	46	46
			Std. Deviation	,56	,66	1,14	1,13	,86
		Total	Mean	1,90	2,24	3,03	2,80	2,55
			N	150	146	146	150	148
			Std. Deviation	,88	,99	1,56	1,37	1,28

Report

gender	nationality	Age		listening in free time	listening as a child	when waking up	when going to sleep	listening at home in the morning
Total	Japanese	12-13	Mean	2,62	2,86	4,18	3,48	3,66
			N	50	50	50	50	50
			Std. Deviation	1,05	1,07	1,12	1,28	1,42
		16-17	Mean	2,22	2,56	3,85	3,06	3,92
			N	50	50	48	50	49
			Std. Deviation	1,02	1,03	1,47	1,32	1,27
		20-21	Mean	2,16	2,64	3,14	2,73	3,02
			N	50	50	49	49	49
			Std. Deviation	,84	,88	1,47	1,29	1,41
		Total	Mean	2,33	2,69	3,73	3,09	3,53
			N	150	150	147	149	148
			Std. Deviation	,99	1,00	1,42	1,32	1,41
	American	12-13	Mean	1,86	2,36	2,37	2,54	2,40
			N	50	50	49	50	50
			Std. Deviation	,73	,88	1,42	1,39	1,20
		16-17	Mean	1,84	2,46	2,45	2,30	2,04
			N	50	50	49	50	48
			Std. Deviation	,91	,99	1,60	1,40	1,25
		20-21	Mean	2,10	2,24	2,70	3,46	2,90
			N	50	49	50	50	50
			Std. Deviation	,81	,83	1,49	1,27	1,11
		Total	Mean	1,93	2,36	2,51	2,77	2,45
			N	150	149	148	150	148
			Std. Deviation	,82	,90	1,50	1,44	1,23
	Total	12-13	Mean	2,29	2,54	3,65	3,19	3,08
			N	201	199	198	200	199
			Std. Deviation	1,04	1,10	1,46	1,46	1,45
		16-17	Mean	1,91	2,34	2,95	2,56	2,76
			N	203	200	198	202	199
			Std. Deviation	,90	1,02	1,54	1,34	1,45
		20-21	Mean	1,91	2,26	2,45	2,85	2,55
			N	196	194	194	195	194
			Std. Deviation	,75	,85	1,40	1,24	1,18
		Total	Mean	2,04	2,38	3,02	2,87	2,80
			N	600	593	590	597	592
			Std. Deviation	,92	1,00	1,54	1,37	1,38

Report

gender	nationality	Age		listening at home in the evening	eating	taking a bath	travelling	studying
male	English	12-13	Mean	2,89	3,82	4,11	2,75	3,30
			N	28	28	27	28	27
			Std. Deviation	1,26	1,44	1,31	1,14	1,46
		16-17	Mean	2,18	3,68	4,14	2,55	3,14
			N	22	22	22	22	22
			Std. Deviation	1,22	1,13	1,25	1,26	1,32
		20-21	Mean	1,77	2,68	2,95	1,91	2,86
			N	22	22	22	22	22
			Std. Deviation	,53	1,09	1,43	1,06	1,32
		Total	Mean	2,33	3,43	3,76	2,43	3,11
			N	72	72	71	72	71
			Std. Deviation	1,16	1,33	1,42	1,20	1,37
	Greek	12-13	Mean	2,41	3,67	3,70	1,96	3,78
			N	27	27	27	27	27
			Std. Deviation	1,12	1,47	1,38	1,32	1,55
		16-17	Mean	2,13	3,27	3,29	2,06	3,03
			N	31	30	31	31	31
			Std. Deviation	1,23	1,26	1,53	1,15	1,35
		20-21	Mean	3,24	2,43	2,29	2,38	2,76
			N	21	21	21	21	21
			Std. Deviation	1,30	1,40	1,35	1,02	1,09
		Total	Mean	2,52	3,18	3,16	2,11	3,22
			N	79	78	79	79	79
			Std. Deviation	1,28	1,44	1,52	1,18	1,41
	Japanese	12-13	Mean	2,58	4,46	4,87	2,71	3,17
			N	24	24	24	24	24
			Std. Deviation	1,41	,93	,45	1,52	1,43
		16-17	Mean	2,77	4,40	4,58	2,96	3,16
			N	26	25	26	26	25
			Std. Deviation	1,31	,87	,70	1,46	1,46
		20-21	Mean	2,13	4,00	4,55	2,70	3,26
			N	23	23	22	23	23
			Std. Deviation	1,06	1,13	,91	1,33	1,10
		Total	Mean	2,51	4,29	4,67	2,79	3,19
			N	73	72	72	73	72
			Std. Deviation	1,28	,98	,71	1,42	1,33
	American	12-13	Mean	2,29	3,83	3,67	1,75	3,25
			N	24	24	24	24	24
			Std. Deviation	,91	,87	1,43	,90	1,29
		16-17	Mean	2,48	2,81	2,63	2,00	3,14
			N	27	27	27	28	28
			Std. Deviation	1,34	1,44	1,74	1,09	1,60
		20-21	Mean	2,92	3,63	3,67	1,46	3,54
			N	24	24	24	24	24
			Std. Deviation	1,18	1,01	1,09	,88	1,35
		Total	Mean	2,56	3,40	3,29	1,75	3,30
			N	75	75	75	76	76
			Std. Deviation	1,18	1,22	1,52	,98	1,42

Report

gender	nationality	Age		listening at home in the evening	eating	taking a bath	travelling	studying
male	Total	12-13	Mean	2,55	3,93	4,08	2,30	3,38
			N	103	103	102	103	102
			Std. Deviation	1,19	1,25	1,29	1,30	1,44
		16-17	Mean	2,39	3,51	3,61	2,36	3,11
			N	106	104	106	107	106
			Std. Deviation	1,28	1,32	1,55	1,28	1,42
		20-21	Mean	2,51	3,21	3,38	2,10	3,12
			N	90	90	89	90	90
			Std. Deviation	1,19	1,31	1,45	1,17	1,24
		Total	Mean	2,48	3,57	3,70	2,26	3,21
			N	299	297	297	300	298
			Std. Deviation	1,22	1,32	1,46	1,26	1,38
female	English	12-13	Mean	2,05	3,23	3,62	2,00	2,45
			N	22	22	21	22	22
			Std. Deviation	1,21	1,34	1,56	1,15	1,65
		16-17	Mean	2,29	3,39	3,68	2,29	2,82
			N	28	28	28	28	28
			Std. Deviation	,94	1,29	1,49	1,15	1,63
		20-21	Mean	2,11	3,15	3,11	1,96	2,71
			N	28	27	27	28	28
			Std. Deviation	,92	,91	1,37	1,04	1,24
		Total	Mean	2,15	3,26	3,46	2,09	2,68
			N	78	77	76	78	78
			Std. Deviation	1,01	1,17	1,47	1,11	1,50
	Greek	12-13	Mean	2,46	3,63	3,67	1,79	3,63
			N	24	24	24	24	24
			Std. Deviation	1,22	1,31	1,74	1,28	1,47
		16-17	Mean	1,64	3,41	2,73	1,68	3,00
			N	22	22	22	22	22
			Std. Deviation	,66	1,40	1,39	,95	1,38
		20-21	Mean	3,36	2,44	1,88	2,40	2,76
			N	25	25	25	25	25
			Std. Deviation	1,22	1,23	1,33	1,04	1,23
		Total	Mean	2,52	3,14	2,75	1,97	3,13
			N	71	71	71	71	71
			Std. Deviation	1,27	1,40	1,65	1,13	1,39
	Japanese	12-13	Mean	2,73	4,50	4,69	3,58	3,08
			N	26	26	26	26	26
			Std. Deviation	1,25	,81	,68	1,39	1,52
		16-17	Mean	2,42	4,29	4,71	2,54	3,58
			N	24	24	24	24	24
			Std. Deviation	1,10	1,08	,75	1,22	1,25
		20-21	Mean	2,96	4,26	4,62	3,56	2,96
			N	27	27	26	27	27
			Std. Deviation	1,02	1,10	,70	1,09	1,16
		Total	Mean	2,71	4,35	4,67	3,25	3,19
			N	77	77	76	77	77
			Std. Deviation	1,13	1,00	,70	1,31	1,33

Report

gender	nationality	Age		listening at home in the evening	eating	taking a bath	travelling	studying
female	American	12-13	Mean	1,62	3,42	2,96	1,58	2,73
			N	26	26	26	26	26
			Std. Deviation	,85	1,17	1,48	,99	1,19
		16-17	Mean	2,00	3,29	3,14	1,32	2,64
			N	22	21	22	22	22
			Std. Deviation	1,23	1,31	1,73	,57	1,47
		20-21	Mean	2,81	3,50	3,42	1,46	3,27
			N	26	26	26	26	26
			Std. Deviation	,85	,99	1,45	,95	1,25
		Total	Mean	2,15	3,41	3,18	1,46	2,89
			N	74	73	74	74	74
			Std. Deviation	1,09	1,14	1,54	,86	1,31
	Total	12-13	Mean	2,21	3,71	3,74	2,26	2,98
			N	98	98	97	98	98
			Std. Deviation	1,20	1,25	1,53	1,45	1,50
		16-17	Mean	2,10	3,60	3,59	1,99	3,01
			N	96	95	96	96	96
			Std. Deviation	1,03	1,32	1,55	1,11	1,47
		20-21	Mean	2,79	3,35	3,27	2,35	2,92
			N	106	105	104	106	106
			Std. Deviation	1,09	1,23	1,57	1,28	1,22
		Total	Mean	2,38	3,55	3,53	2,20	2,97
			N	300	298	297	300	300
			Std. Deviation	1,15	1,27	1,56	1,29	1,39
Total	English	12-13	Mean	2,52	3,56	3,90	2,42	2,92
			N	50	50	48	50	49
			Std. Deviation	1,30	1,42	1,43	1,20	1,59
		16-17	Mean	2,24	3,52	3,88	2,40	2,96
			N	50	50	50	50	50
			Std. Deviation	1,06	1,22	1,39	1,20	1,50
		20-21	Mean	1,96	2,94	3,04	1,94	2,78
			N	50	49	49	50	50
			Std. Deviation	,78	1,01	1,38	1,04	1,27
		Total	Mean	2,24	3,34	3,61	2,25	2,89
			N	150	149	147	150	149
			Std. Deviation	1,08	1,25	1,45	1,16	1,45
	Greek	12-13	Mean	2,43	3,65	3,69	1,88	3,71
			N	51	51	51	51	51
			Std. Deviation	1,15	1,38	1,54	1,29	1,50
		16-17	Mean	1,92	3,33	3,06	1,91	3,02
			N	53	52	53	53	53
			Std. Deviation	1,05	1,31	1,49	1,08	1,35
		20-21	Mean	3,30	2,43	2,07	2,39	2,76
			N	46	46	46	46	46
			Std. Deviation	1,24	1,29	1,34	1,02	1,16
		Total	Mean	2,52	3,16	2,97	2,05	3,17
			N	150	149	150	150	150
			Std. Deviation	1,27	1,41	1,59	1,15	1,40

Report

gender	nationality	Age		listening at home in the evening	eating	taking a bath	travelling	studying
Total	Japanese	12-13	Mean	2,66	4,48	4,78	3,16	3,12
			N	50	50	50	50	50
			Std. Deviation	1,32	,86	,58	1,50	1,47
		16-17	Mean	2,60	4,35	4,64	2,76	3,37
			N	50	49	50	50	49
			Std. Deviation	1,21	,97	,72	1,35	1,36
		20-21	Mean	2,58	4,14	4,58	3,16	3,10
			N	50	50	48	50	50
			Std. Deviation	1,11	1,11	,79	1,27	1,13
		Total	Mean	2,61	4,32	4,67	3,03	3,19
			N	150	149	148	150	149
			Std. Deviation	1,21	,99	,70	1,38	1,32
	American	12-13	Mean	1,94	3,62	3,30	1,66	2,98
			N	50	50	50	50	50
			Std. Deviation	,93	1,05	1,49	,94	1,25
		16-17	Mean	2,27	3,02	2,86	1,70	2,92
			N	49	48	49	50	50
			Std. Deviation	1,30	1,39	1,73	,95	1,55
		20-21	Mean	2,86	3,56	3,54	1,46	3,40
			N	50	50	50	50	50
			Std. Deviation	1,01	,99	1,28	,91	1,29
		Total	Mean	2,36	3,41	3,23	1,61	3,10
			N	149	148	149	150	150
			Std. Deviation	1,15	1,18	1,53	,93	1,38
	Total	12-13	Mean	2,39	3,83	3,91	2,28	3,18
			N	201	201	199	201	200
			Std. Deviation	1,21	1,25	1,42	1,37	1,48
		16-17	Mean	2,25	3,55	3,60	2,19	3,06
			N	202	199	202	203	202
			Std. Deviation	1,18	1,32	1,55	1,22	1,44
		20-21	Mean	2,66	3,29	3,32	2,23	3,02
			N	196	195	193	196	196
			Std. Deviation	1,15	1,27	1,51	1,23	1,23
		Total	Mean	2,43	3,56	3,62	2,23	3,09
			N	599	595	594	600	598
			Std. Deviation	1,19	1,30	1,51	1,27	1,39

Report

gender	nationality	Age		revising for exams	writing	memorizing texts	reading	doing course work
male	English	12-13	Mean	3,93	3,86	4,07	4,07	4,63
			N	28	28	28	28	27
			Std. Deviation	1,46	1,18	1,30	1,27	,69
		16-17	Mean	3,41	3,14	4,18	3,77	3,27
			N	22	22	22	22	22
			Std. Deviation	1,44	1,13	1,10	1,11	1,32
		20-21	Mean	3,27	2,64	4,18	3,41	2,91
			N	22	22	22	22	22
			Std. Deviation	1,08	1,22	,96	1,22	1,38
		Total	Mean	3,57	3,26	4,14	3,78	3,68
			N	72	72	72	72	71
			Std. Deviation	1,36	1,27	1,13	1,22	1,36
	Greek	12-13	Mean	4,19	3,67	4,59	4,15	3,44
			N	27	27	27	27	27
			Std. Deviation	1,47	1,59	,75	1,17	1,63
		16-17	Mean	3,90	2,52	4,23	3,26	3,06
			N	31	31	31	31	31
			Std. Deviation	1,27	1,23	1,06	1,34	1,36
		20-21	Mean	3,05	2,76	3,67	3,19	2,86
			N	21	21	21	21	21
			Std. Deviation	1,16	1,09	1,20	1,12	1,35
		Total	Mean	3,77	2,97	4,20	3,54	3,14
			N	79	79	79	79	79
			Std. Deviation	1,38	1,41	1,05	1,29	1,46
	Japanese	12-13	Mean	4,21	3,67	4,25	3,29	3,63
			N	24	24	24	24	24
			Std. Deviation	1,38	1,49	1,36	1,46	1,24
		16-17	Mean	3,77	3,81	4,04	3,38	3,81
			N	26	26	26	26	26
			Std. Deviation	1,48	1,47	1,40	1,50	1,39
		20-21	Mean	4,17	3,57	4,48	3,74	4,13
			N	23	23	23	23	23
			Std. Deviation	,94	1,08	,79	1,25	,87
		Total	Mean	4,04	3,68	4,25	3,47	3,85
			N	73	73	73	73	73
			Std. Deviation	1,30	1,35	1,22	1,41	1,20
	American	12-13	Mean	3,78	3,17	3,75	3,17	3,36
			N	23	24	24	24	22
			Std. Deviation	1,20	1,20	1,39	1,13	1,09
		16-17	Mean	3,25	3,11	3,64	3,57	2,93
			N	28	28	28	28	28
			Std. Deviation	1,55	1,37	1,45	1,50	1,59
		20-21	Mean	3,88	3,54	4,04	4,12	3,37
			N	24	24	24	24	24
			Std. Deviation	1,26	1,28	1,08	1,03	1,13
		Total	Mean	3,61	3,26	3,80	3,62	3,20
			N	75	76	76	76	74
			Std. Deviation	1,37	1,29	1,32	1,30	1,31

Report

gender	nationality	Age		revising for exams	writing	memorizing texts	reading	doing course work
male	Total	12-13	Mean	4,03	3,60	4,17	3,70	3,79
			N	102	103	103	103	100
			Std. Deviation	1,38	1,38	1,24	1,32	1,30
		16-17	Mean	3,60	3,11	4,02	3,48	3,25
			N	107	107	107	107	107
			Std. Deviation	1,44	1,38	1,27	1,38	1,44
		20-21	Mean	3,61	3,14	4,10	3,63	3,33
			N	90	90	90	90	90
			Std. Deviation	1,19	1,23	1,04	1,19	1,28
		Total	Mean	3,75	3,29	4,10	3,60	3,46
			N	299	300	300	300	297
			Std. Deviation	1,36	1,35	1,19	1,30	1,37
female	English	12-13	Mean	3,59	2,50	3,86	3,18	3,38
			N	22	22	22	22	21
			Std. Deviation	1,53	1,50	1,42	1,59	1,66
		16-17	Mean	3,14	2,86	3,64	3,27	3,07
			N	28	28	28	26	28
			Std. Deviation	1,78	1,51	1,52	1,37	1,51
		20-21	Mean	3,07	2,57	3,79	3,07	2,86
			N	28	28	28	28	28
			Std. Deviation	1,30	1,14	1,29	1,21	1,33
		Total	Mean	3,24	2,65	3,76	3,17	3,08
			N	78	78	78	76	77
			Std. Deviation	1,55	1,38	1,40	1,37	1,48
	Greek	12-13	Mean	4,71	3,13	4,62	3,87	3,33
			N	24	24	24	24	24
			Std. Deviation	,62	1,57	,82	1,36	1,52
		16-17	Mean	4,36	2,09	4,50	3,64	2,77
			N	22	22	22	22	22
			Std. Deviation	1,22	,92	1,06	1,36	1,34
		20-21	Mean	3,00	2,44	3,84	2,96	2,60
			N	25	25	25	25	25
			Std. Deviation	1,44	1,23	1,03	1,24	1,26
		Total	Mean	4,00	2,56	4,31	3,48	2,90
			N	71	71	71	71	71
			Std. Deviation	1,36	1,33	1,02	1,36	1,40
	Japanese	12-13	Mean	4,31	4,00	4,58	3,81	4,08
			N	26	26	26	26	25
			Std. Deviation	1,16	1,36	,86	1,02	,95
		16-17	Mean	4,38	4,00	4,75	3,83	4,63
			N	24	24	24	24	24
			Std. Deviation	,92	1,06	,44	1,24	,82
		20-21	Mean	3,33	3,37	4,00	3,81	3,89
			N	27	27	27	27	27
			Std. Deviation	1,44	1,31	1,14	1,18	1,15
		Total	Mean	3,99	3,78	4,43	3,82	4,18
			N	77	77	77	77	76
			Std. Deviation	1,28	1,27	,92	1,13	1,03

Report

gender	nationality	Age		revising for exams	writing	memorizin g texts	reading	doing course work
female	American	12-13	Mean	3,52	2,35	3,65	3,32	3,08
			N	25	26	26	25	26
			Std. Deviation	1,19	1,02	1,38	1,46	1,47
		16-17	Mean	3,27	2,45	3,73	3,09	2,77
			N	22	22	22	22	22
			Std. Deviation	1,52	1,53	1,61	1,63	1,63
		20-21	Mean	3,85	3,54	4,23	3,96	3,50
			N	26	26	26	26	26
			Std. Deviation	1,12	1,03	,91	1,00	1,14
		Total	Mean	3,56	2,80	3,88	3,48	3,14
			N	73	74	74	73	74
			Std. Deviation	1,28	1,30	1,32	1,41	1,43
	Total	12-13	Mean	4,04	3,01	4,18	3,56	3,47
			N	97	98	98	97	96
			Std. Deviation	1,25	1,50	1,21	1,38	1,44
		16-17	Mean	3,76	2,88	4,14	3,46	3,32
			N	96	96	96	94	96
			Std. Deviation	1,51	1,46	1,33	1,41	1,55
		20-21	Mean	3,31	2,98	3,96	3,45	3,22
			N	106	106	106	106	106
			Std. Deviation	1,35	1,26	1,10	1,23	1,31
		Total	Mean	3,69	2,96	4,09	3,49	3,33
			N	299	300	300	297	298
			Std. Deviation	1,40	1,40	1,21	1,33	1,43
Total	English	12-13	Mean	3,78	3,26	3,98	3,68	4,08
			N	50	50	50	50	48
			Std. Deviation	1,49	1,48	1,35	1,48	1,35
		16-17	Mean	3,26	2,98	3,88	3,50	3,16
			N	50	50	50	48	50
			Std. Deviation	1,63	1,35	1,36	1,27	1,42
		20-21	Mean	3,16	2,60	3,96	3,22	2,88
			N	50	50	50	50	50
			Std. Deviation	1,20	1,16	1,16	1,22	1,33
		Total	Mean	3,40	2,95	3,94	3,47	3,36
			N	150	150	150	148	148
			Std. Deviation	1,47	1,36	1,29	1,33	1,45
	Greek	12-13	Mean	4,43	3,41	4,61	4,02	3,39
			N	51	51	51	51	51
			Std. Deviation	1,17	1,59	,78	1,26	1,56
		16-17	Mean	4,09	2,34	4,34	3,42	2,94
			N	53	53	53	53	53
			Std. Deviation	1,26	1,13	1,06	1,35	1,35
		20-21	Mean	3,02	2,59	3,76	3,07	2,72
			N	46	46	46	46	46
			Std. Deviation	1,31	1,17	1,10	1,18	1,29
		Total	Mean	3,88	2,78	4,25	3,51	3,03
			N	150	150	150	150	150
			Std. Deviation	1,37	1,38	1,04	1,32	1,43

Report

gender	nationality	Age		revising for exams	writing	memorizing texts	reading	doing course work
Total	Japanese	12-13	Mean	4,26	3,84	4,42	3,56	3,86
			N	50	50	50	50	49
			Std. Deviation	1,26	1,42	1,13	1,26	1,12
		16-17	Mean	4,06	3,90	4,38	3,60	4,20
			N	50	50	50	50	50
			Std. Deviation	1,27	1,28	1,10	1,39	1,21
		20-21	Mean	3,72	3,46	4,22	3,78	4,00
			N	50	50	50	50	50
			Std. Deviation	1,29	1,20	1,02	1,20	1,03
		Total	Mean	4,01	3,73	4,34	3,65	4,02
			N	150	150	150	150	149
			Std. Deviation	1,28	1,31	1,08	1,28	1,12
	American	12-13	Mean	3,65	2,74	3,70	3,24	3,21
			N	48	50	50	49	48
			Std. Deviation	1,19	1,17	1,37	1,30	1,30
		16-17	Mean	3,26	2,82	3,68	3,36	2,86
			N	50	50	50	50	50
			Std. Deviation	1,52	1,47	1,50	1,56	1,59
		20-21	Mean	3,86	3,54	4,14	4,04	3,44
			N	50	50	50	50	50
			Std. Deviation	1,18	1,15	,99	1,01	1,13
		Total	Mean	3,59	3,03	3,84	3,55	3,17
			N	148	150	150	149	148
			Std. Deviation	1,32	1,31	1,32	1,35	1,37
	Total	12-13	Mean	4,04	3,31	4,18	3,63	3,63
			N	199	201	201	200	196
			Std. Deviation	1,32	1,47	1,22	1,35	1,38
		16-17	Mean	3,67	3,00	4,07	3,47	3,29
			N	203	203	203	201	203
			Std. Deviation	1,47	1,42	1,29	1,39	1,49
		20-21	Mean	3,45	3,06	4,03	3,54	3,27
			N	196	196	196	196	196
			Std. Deviation	1,29	1,25	1,07	1,21	1,29
		Total	Mean	3,72	3,12	4,09	3,54	3,39
			N	598	600	600	597	595
			Std. Deviation	1,38	1,39	1,20	1,32	1,40

Report

gender	nationality	Age		editing work previously completed	solving problems	developing ideas	thinking	helps concentrate
male	English	12-13	Mean	4,11	4,08	3,61	3,46	3,43
			N	27	26	28	28	28
			Std. Deviation	1,05	1,52	1,37	1,26	1,45
		16-17	Mean	3,41	3,41	3,55	3,27	2,77
			N	22	22	22	22	22
			Std. Deviation	1,14	1,44	1,37	1,32	1,38
		20-21	Mean	2,64	3,45	3,18	3,18	3,09
			N	22	22	22	22	22
			Std. Deviation	1,36	1,14	1,05	1,18	1,34
		Total	Mean	3,44	3,67	3,46	3,32	3,13
			N	71	70	72	72	72
			Std. Deviation	1,32	1,40	1,28	1,24	1,40
	Greek	12-13	Mean	3,96	4,04	3,89	3,59	3,70
			N	27	27	27	27	27
			Std. Deviation	1,53	1,48	1,42	1,53	1,44
		16-17	Mean	3,71	2,84	3,00	2,35	2,77
			N	31	31	31	31	31
			Std. Deviation	1,27	1,53	1,32	1,38	1,09
		20-21	Mean	4,00	4,00	2,90	2,05	2,62
			N	21	21	21	21	21
			Std. Deviation	1,00	1,38	1,04	1,16	1,12
		Total	Mean	3,87	3,56	3,28	2,70	3,05
			N	79	79	79	79	79
			Std. Deviation	1,29	1,57	1,35	1,51	1,30
	Japanese	12-13	Mean	3,63	3,54	3,88	3,33	2,96
			N	24	24	24	24	24
			Std. Deviation	1,58	1,44	1,30	1,58	1,57
		16-17	Mean	3,54	3,38	3,27	3,50	3,46
			N	26	26	26	26	24
			Std. Deviation	1,48	1,60	1,40	1,39	1,41
		20-21	Mean	3,04	3,78	3,87	3,22	3,52
			N	23	23	23	23	23
			Std. Deviation	1,22	,90	1,10	1,17	1,12
		Total	Mean	3,41	3,56	3,66	3,36	3,31
			N	73	73	73	73	71
			Std. Deviation	1,44	1,35	1,29	1,38	1,39
	American	12-13	Mean	3,65	3,21	2,96	2,71	2,54
			N	23	24	24	24	24
			Std. Deviation	1,15	1,41	1,30	1,12	1,18
		16-17	Mean	3,32	3,04	3,04	2,36	2,57
			N	28	28	28	28	28
			Std. Deviation	1,47	1,37	1,40	1,34	1,35
		20-21	Mean	3,38	3,33	3,42	3,37	3,54
			N	24	24	24	24	24
			Std. Deviation	1,24	1,24	1,35	1,31	1,18
		Total	Mean	3,44	3,18	3,13	2,79	2,87
			N	75	76	76	76	76
			Std. Deviation	1,30	1,33	1,35	1,32	1,31

Report

gender	nationality	Age		editing work previously completed	solving problems	developing ideas	thinking	helps concentrate
male	Total	12-13	Mean	3,85	3,73	3,59	3,29	3,18
			N	101	101	103	103	103
			Std. Deviation	1,34	1,49	1,38	1,40	1,47
		16-17	Mean	3,50	3,14	3,19	2,82	2,88
			N	107	107	107	107	105
			Std. Deviation	1,34	1,49	1,37	1,44	1,32
		20-21	Mean	3,26	3,63	3,36	2,98	3,21
			N	90	90	90	90	90
			Std. Deviation	1,29	1,18	1,18	1,30	1,23
		Total	Mean	3,55	3,49	3,38	3,03	3,08
			N	298	298	300	300	298
			Std. Deviation	1,35	1,42	1,33	1,40	1,35
female	English	12-13	Mean	2,86	3,73	3,48	3,14	2,59
			N	21	22	21	22	22
			Std. Deviation	1,71	1,39	1,60	1,67	1,50
		16-17	Mean	2,96	3,43	3,18	2,93	2,93
			N	27	28	28	28	28
			Std. Deviation	1,22	1,53	1,28	1,25	1,36
		20-21	Mean	2,61	3,21	3,11	2,61	2,89
			N	28	28	28	28	28
			Std. Deviation	1,20	1,26	1,20	1,03	1,13
		Total	Mean	2,80	3,44	3,23	2,87	2,82
			N	76	78	77	78	78
			Std. Deviation	1,36	1,39	1,34	1,31	1,32
	Greek	12-13	Mean	4,13	3,29	3,79	3,92	3,38
			N	24	24	24	24	24
			Std. Deviation	1,36	1,57	1,38	1,32	1,58
		16-17	Mean	4,05	3,27	3,27	1,82	3,27
			N	22	22	22	22	22
			Std. Deviation	1,29	1,45	1,52	,91	1,28
		20-21	Mean	3,80	3,60	2,40	1,84	3,42
			N	25	25	25	25	24
			Std. Deviation	1,19	1,19	1,08	1,21	1,06
		Total	Mean	3,99	3,39	3,14	2,54	3,36
			N	71	71	71	71	70
			Std. Deviation	1,27	1,40	1,44	1,52	1,31
	Japanese	12-13	Mean	3,81	3,77	3,96	3,46	3,19
			N	26	26	26	26	26
			Std. Deviation	1,50	1,45	1,25	1,48	1,50
		16-17	Mean	3,67	4,13	4,38	3,54	4,04
			N	24	24	24	24	24
			Std. Deviation	1,37	1,12	,97	1,50	1,12
		20-21	Mean	3,78	3,67	4,04	3,31	3,59
			N	27	27	27	26	27
			Std. Deviation	,93	1,14	1,02	1,16	1,25
		Total	Mean	3,75	3,84	4,12	3,43	3,60
			N	77	77	77	76	77
			Std. Deviation	1,27	1,25	1,09	1,37	1,33

Report

gender	nationality	Age		editing work previously completed	solving problems	developing ideas	thinking	helps concentrat e
female	American	12-13	Mean	3,04	3,15	2,88	2,54	2,35
			N	26	26	25	26	26
			Std. Deviation	1,22	1,35	1,42	1,14	1,09
		16-17	Mean	2,91	2,91	2,95	2,05	2,32
			N	22	22	22	22	22
			Std. Deviation	1,51	1,48	1,59	1,29	1,09
		20-21	Mean	3,62	3,88	3,54	2,73	3,35
			N	26	26	26	26	26
			Std. Deviation	1,10	1,21	1,07	,78	1,06
		Total	Mean	3,20	3,34	3,14	2,46	2,69
			N	74	74	73	74	74
			Std. Deviation	1,29	1,39	1,38	1,10	1,17
	Total	12-13	Mean	3,47	3,48	3,53	3,26	2,88
			N	97	98	96	98	98
			Std. Deviation	1,51	1,44	1,45	1,47	1,47
		16-17	Mean	3,38	3,45	3,45	2,63	3,15
			N	95	96	96	96	96
			Std. Deviation	1,41	1,45	1,44	1,42	1,35
		20-21	Mean	3,43	3,58	3,28	2,63	3,30
			N	106	106	106	105	105
			Std. Deviation	1,20	1,21	1,23	1,16	1,14
		Total	Mean	3,43	3,51	3,42	2,83	3,11
			N	298	300	298	299	299
			Std. Deviation	1,37	1,36	1,37	1,38	1,33
Total	English	12-13	Mean	3,56	3,92	3,55	3,32	3,06
			N	48	48	49	50	50
			Std. Deviation	1,50	1,46	1,46	1,45	1,52
		16-17	Mean	3,16	3,42	3,34	3,08	2,86
			N	49	50	50	50	50
			Std. Deviation	1,20	1,47	1,32	1,28	1,36
		20-21	Mean	2,62	3,32	3,14	2,86	2,98
			N	50	50	50	50	50
			Std. Deviation	1,26	1,20	1,13	1,13	1,22
		Total	Mean	3,11	3,55	3,34	3,09	2,97
			N	147	148	149	150	150
			Std. Deviation	1,37	1,40	1,31	1,29	1,36
	Greek	12-13	Mean	4,04	3,69	3,84	3,75	3,55
			N	51	51	51	51	51
			Std. Deviation	1,44	1,56	1,39	1,43	1,50
		16-17	Mean	3,85	3,02	3,11	2,13	2,98
			N	53	53	53	53	53
			Std. Deviation	1,28	1,50	1,40	1,23	1,18
		20-21	Mean	3,89	3,78	2,63	1,93	3,04
			N	46	46	46	46	45
			Std. Deviation	1,10	1,28	1,08	1,18	1,15
		Total	Mean	3,93	3,48	3,21	2,62	3.19
			N	150	150	150	150	149
			Std. Deviation	1,28	1,49	1,39	1,51	1.31

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gender	nationality	Age		editing work previously completed	solving problems	developing ideas	thinking	helps concentrate
Total	Japanese	12-13	Mean	3,72	3,66	3,92	3,40	3,08
			N	50	50	50	50	50
			Std. Deviation	1,53	1,44	1,26	1,51	1,52
		16-17	Mean	3,60	3,74	3,80	3,52	3,75
			N	50	50	50	50	48
			Std. Deviation	1,41	1,43	1,32	1,43	1,30
		20-21	Mean	3,44	3,72	3,96	3,27	3,56
			N	50	50	50	49	50
			Std. Deviation	1,13	1,03	1,05	1,15	1,18
		Total	Mean	3,59	3,71	3,89	3,40	3,46
			N	150	150	150	149	148
			Std. Deviation	1,36	1,30	1,21	1,37	1,36
	American	12-13	Mean	3,33	3,18	2,92	2,62	2,44
			N	49	50	49	50	50
			Std. Deviation	1,21	1,37	1,35	1,12	1,13
		16-17	Mean	3,14	2,98	3,00	2,22	2,46
			N	50	50	50	50	50
			Std. Deviation	1,48	1,41	1,47	1,31	1,23
		20-21	Mean	3,50	3,62	3,48	3,04	3,44
			N	50	50	50	50	50
			Std. Deviation	1,16	1,24	1,20	1,11	1,11
		Total	Mean	3,32	3,26	3,13	2,63	2,78
			N	149	150	149	150	150
			Std. Deviation	1,30	1,36	1,36	1,22	1,24
	Total	12-13	Mean	3,67	3,61	3,56	3,27	3,03
			N	198	199	199	201	201
			Std. Deviation	1,44	1,47	1,41	1,44	1,47
		16-17	Mean	3,45	3,29	3,31	2,73	3,00
			N	202	203	203	203	201
			Std. Deviation	1,37	1,47	1,40	1,43	1,34
		20-21	Mean	3,35	3,61	3,32	2,79	3,26
			N	196	196	196	195	195
			Std. Deviation	1,25	1,20	1,21	1,24	1,18
		Total	Mean	3,49	3,50	3,40	2,93	3,10
			N	596	598	598	599	597
			Std. Deviation	1,36	1,39	1,35	1,39	1,34

Report

gender	nationality	Age		keeps company	alleviates boredom	relaxes me	helps me learn faster	interferes so I can't concentrate
male	English	12-13	Mean	2,96	2,93	2,32	3,78	3,57
			N	28	27	28	27	28
			Std. Deviation	1,43	1,44	1,47	1,60	1,29
		16-17	Mean	3,00	2,55	2,00	3,32	3,91
			N	22	22	22	22	22
			Std. Deviation	1,54	1,41	1,27	1,25	1,19
		20-21	Mean	1,91	1,73	1,59	3,64	2,68
			N	22	22	22	22	22
			Std. Deviation	,87	1,03	,80	1,05	1,29
		Total	Mean	2,65	2,44	2,00	3,59	3,40
			N	72	71	72	71	72
			Std. Deviation	1,40	1,39	1,26	1,34	1,34
	Greek	12-13	Mean	2,19	2,15	1,85	4,15	2,63
			N	27	27	27	27	27
			Std. Deviation	1,18	1,26	1,20	1,35	1,82
		16-17	Mean	1,39	1,74	1,45	3,55	3,19
			N	31	31	31	31	31
			Std. Deviation	,62	,86	,72	1,15	1,22
		20-21	Mean	1,57	1,95	1,33	3,20	2,81
			N	21	21	21	20	21
			Std. Deviation	,81	1,28	,48	1,15	1,40
		Total	Mean	1,71	1,94	1,56	3,67	2,90
			N	79	79	79	78	79
			Std. Deviation	,95	1,12	,89	1,27	1,50
	Japanese	12-13	Mean	2,92	2,21	2,21	3,33	4,08
			N	24	24	24	24	24
			Std. Deviation	1,41	1,50	1,47	1,61	1,25
		16-17	Mean	2,80	2,31	1,77	3,42	3,08
			N	25	26	26	26	26
			Std. Deviation	1,55	1,29	,82	1,30	1,26
		20-21	Mean	2,22	1,48	1,52	3,61	3,09
			N	23	23	23	23	23
			Std. Deviation	,74	,79	,67	1,23	1,24
		Total	Mean	2,65	2,01	1,84	3,45	3,41
			N	72	73	73	73	73
			Std. Deviation	1,31	1,27	1,07	1,37	1,32
	American	12-13	Mean	2,21	1,96	1,96	3,25	3,67
			N	24	24	24	24	24
			Std. Deviation	1,02	1,08	1,08	1,11	1,34
		16-17	Mean	2,50	2,21	2,18	3,32	3,44
			N	28	28	28	28	27
			Std. Deviation	1,43	1,26	1,28	1,47	1,25
		20-21	Mean	2,54	2,42	2,08	4,04	2,58
			N	24	24	24	24	24
			Std. Deviation	,93	1,10	,78	,91	1,10
		Total	Mean	2,42	2,20	2,08	3,53	3,24
			N	76	76	76	76	75
			Std. Deviation	1,16	1,15	1,07	1,24	1,30

Report

gender	nationality	Age		keeps company	alleviates boredom	relaxes me	helps me learn faster	interferes so I can't concentrate
male	Total	12-13	Mean	2,57	2,32	2,09	3,65	3,47
			N	103	102	103	102	103
			Std. Deviation	1,31	1,37	1,31	1,46	1,53
		16-17	Mean	2,35	2,17	1,83	3,41	3,38
			N	106	107	107	107	106
			Std. Deviation	1,44	1,22	1,06	1,28	1,25
		20-21	Mean	2,08	1,90	1,64	3,64	2,79
			N	90	90	90	89	90
			Std. Deviation	,90	1,10	,74	1,11	1,25
		Total	Mean	2,34	2,14	1,86	3,56	3,23
			N	299	299	300	298	299
			Std. Deviation	1,27	1,25	1,09	1,30	1,38
female	English	12-13	Mean	2,27	1,91	1,82	3,00	3,90
			N	22	22	22	21	21
			Std. Deviation	1,49	1,34	1,10	1,55	1,51
		16-17	Mean	2,12	1,75	1,54	3,32	3,36
			N	26	28	28	28	28
			Std. Deviation	1,21	,93	1,00	1,33	1,34
		20-21	Mean	2,18	2,00	2,07	3,82	2,79
			N	28	27	28	28	28
			Std. Deviation	,82	,68	,66	1,19	,99
		Total	Mean	2,18	1,88	1,81	3,42	3,30
			N	76	77	78	77	77
			Std. Deviation	1,16	,99	,94	1,37	1,34
	Greek	12-13	Mean	1,83	1,96	1,75	4,08	3,08
			N	24	24	24	24	24
			Std. Deviation	1,05	1,00	,94	1,06	1,44
		16-17	Mean	1,18	1,36	1,32	3,41	3,36
			N	22	22	22	22	22
			Std. Deviation	,39	,49	,89	1,18	1,26
		20-21	Mean	1,36	1,56	1,44	3,63	2,52
			N	25	25	25	24	25
			Std. Deviation	,49	,77	,58	1,31	1,23
		Total	Mean	1,46	1,63	1,51	3,71	2,97
			N	71	71	71	70	71
			Std. Deviation	,75	,81	,83	1,21	1,34
	Japanese	12-13	Mean	2,76	2,00	2,35	3,27	4,00
			N	25	26	26	26	26
			Std. Deviation	1,33	1,30	1,32	1,43	1,23
		16-17	Mean	2,67	1,83	1,75	3,67	2,96
			N	24	24	24	24	24
			Std. Deviation	1,31	1,05	1,19	1,43	1,37
		20-21	Mean	2,78	1,96	1,85	3,19	3,52
			N	27	27	27	27	27
			Std. Deviation	1,37	,94	,95	1,44	1,28
		Total	Mean	2,74	1,94	1,99	3,36	3,51
			N	76	77	77	77	77
			Std. Deviation	1,32	1,09	1,18	1,43	1,34

Report

gender	nationality	Age		keeps company	alleviates boredom	relaxes me	helps me learn faster	interferes so I can't concentrate
female	American	12-13	Mean	1,54	1,35	1,42	3,15	3,58
			N	26	26	26	26	26
			Std. Deviation	,81	,63	,70	1,26	1,27
		16-17	Mean	2,14	1,50	1,81	3,59	3,90
			N	22	22	21	22	21
			Std. Deviation	1,04	,74	1,12	1,22	1,00
		20-21	Mean	2,35	2,46	1,85	4,15	3,04
			N	26	26	26	26	26
			Std. Deviation	1,02	,95	,78	,88	1,31
		Total	Mean	2,00	1,78	1,68	3,64	3,48
			N	74	74	73	74	73
			Std. Deviation	1,01	,93	,88	1,19	1,25
	Total	12-13	Mean	2,09	1,80	1,84	3,38	3,64
			N	97	98	98	97	97
			Std. Deviation	1,26	1,11	1,08	1,37	1,39
		16-17	Mean	2,04	1,62	1,60	3,49	3,38
			N	94	96	95	96	95
			Std. Deviation	1,17	,85	1,06	1,29	1,28
		20-21	Mean	2,18	2,00	1,81	3,70	2,97
			N	106	105	106	105	106
			Std. Deviation	1,09	,89	,78	1,26	1,25
		Total	Mean	2,11	1,81	1,75	3,53	3,32
			N	297	299	299	298	298
			Std. Deviation	1,17	,97	,98	1,31	1,33
Total	English	12-13	Mean	2,66	2,47	2,10	3,44	3,71
			N	50	49	50	48	49
			Std. Deviation	1,48	1,47	1,33	1,61	1,38
		16-17	Mean	2,52	2,10	1,74	3,32	3,60
			N	48	50	50	50	50
			Std. Deviation	1,43	1,22	1,14	1,28	1,29
		20-21	Mean	2,06	1,88	1,86	3,74	2,74
			N	50	49	50	50	50
			Std. Deviation	,84	,86	,76	1,12	1,12
		Total	Mean	2,41	2,15	1,90	3,50	3,35
			N	148	148	150	148	149
			Std. Deviation	1,30	1,23	1,10	1,35	1,34
	Greek	12-13	Mean	2,02	2,06	1,80	4,12	2,84
			N	51	51	51	51	51
			Std. Deviation	1,12	1,14	1,08	1,21	1,65
		16-17	Mean	1,30	1,58	1,40	3,49	3,26
			N	53	53	53	53	53
			Std. Deviation	,54	,75	,79	1,15	1,23
		20-21	Mean	1,46	1,74	1,39	3,43	2,65
			N	46	46	46	44	46
			Std. Deviation	,66	1,04	,54	1,25	1,30
		Total	Mean	1,59	1,79	1,53	3,69	2,93
			N	150	150	150	148	150
			Std. Deviation	,87	1,00	,86	1,23	1,42

Report

gender	nationality	Age		keeps company	alleviates boredom	relaxes me	helps me learn faster	interferes so I can't concentrat e
Total	Japanese	12-13	Mean	2,84	2,10	2,28	3,30	4,04
			N	49	50	50	50	50
			Std. Deviation	1,36	1,39	1,39	1,50	1,23
		16-17	Mean	2,73	2,08	1,76	3,54	3,02
			N	49	50	50	50	50
			Std. Deviation	1,43	1,19	1,00	1,36	1,30
		20-21	Mean	2,52	1,74	1,70	3,38	3,32
			N	50	50	50	50	50
			Std. Deviation	1,15	,90	,84	1,35	1,27
		Total	Mean	2,70	1,97	1,91	3,41	3,46
			N	148	150	150	150	150
			Std. Deviation	1,31	1,18	1,12	1,40	1,33
	American	12-13	Mean	1,86	1,64	1,68	3,20	3,62
			N	50	50	50	50	50
			Std. Deviation	,97	,92	,94	1,18	1,29
		16-17	Mean	2,34	1,90	2,02	3,44	3,65
			N	50	50	49	50	48
			Std. Deviation	1,27	1,11	1,22	1,36	1,16
		20-21	Mean	2,44	2,44	1,96	4,10	2,82
			N	50	50	50	50	50
			Std. Deviation	,97	1,01	,78	,89	1,22
		Total	Mean	2,21	1,99	1,89	3,58	3,36
			N	150	150	149	150	148
			Std. Deviation	1,10	1,06	1,00	1,21	1,28
	Total	12-13	Mean	2,34	2,07	1,97	3,52	3,55
			N	200	200	201	199	200
			Std. Deviation	1,30	1,27	1,21	1,42	1,46
		16-17	Mean	2,21	1,91	1,72	3,45	3,38
			N	200	203	202	203	201
			Std. Deviation	1,33	1,09	1,06	1,28	1,26
		20-21	Mean	2,13	1,95	1,73	3,67	2,89
			N	196	195	196	194	196
			Std. Deviation	1,01	,99	,77	1,19	1,25
		Total	Mean	2,23	1,98	1,81	3,54	3,27
			N	596	598	599	596	597
			Std. Deviation	1,22	1,13	1,04	1,30	1,35

Report

gender	nationality	Age		interferes because I sing along	interferes because it makes me too aroused	listen with my favourite subject	listen with least favourite subject	learning a foreign language
male	English	12-13	Mean	3,32	3,75	3,57	3,81	4,56
			N	28	28	28	27	27
			Std. Deviation	1,52	1,24	1,43	1,36	,97
		16-17	Mean	3,38	4,18	3,19	3,00	4,14
			N	21	22	21	22	22
			Std. Deviation	1,53	1,26	1,25	1,31	1,08
		20-21	Mean	2,91	3,62	3,23	3,32	4,29
			N	22	21	22	22	21
			Std. Deviation	1,15	1,20	1,27	1,25	,90
		Total	Mean	3,21	3,85	3,35	3,41	4,34
			N	71	71	71	71	70
			Std. Deviation	1,41	1,24	1,32	1,34	,99
	Greek	12-13	Mean	2,59	3,85	4,04	4,11	3,89
			N	27	27	27	27	27
			Std. Deviation	1,45	1,61	1,32	1,40	1,45
		16-17	Mean	3,03	4,26	3,39	3,13	3,77
			N	31	31	31	31	31
			Std. Deviation	1,35	1,21	1,50	1,52	1,41
		20-21	Mean	2,43	3,81	3,20	2,62	3,81
			N	21	21	20	21	21
			Std. Deviation	1,36	1,17	1,44	1,50	1,33
		Total	Mean	2,72	4,00	3,56	3,33	3,82
			N	79	79	78	79	79
			Std. Deviation	1,40	1,35	1,45	1,57	1,38
	Japanese	12-13	Mean	4,00	4,29	3,42	3,46	3,46
			N	24	24	24	24	24
			Std. Deviation	1,22	1,16	1,53	1,59	1,35
		16-17	Mean	3,69	4,35	3,31	3,54	3,42
			N	26	26	26	26	26
			Std. Deviation	1,32	1,06	1,44	1,45	1,33
		20-21	Mean	3,43	4,09	3,52	3,43	3,77
			N	23	22	23	23	22
			Std. Deviation	1,34	,87	1,20	1,12	,87
		Total	Mean	3,71	4,25	3,41	3,48	3,54
			N	73	72	73	73	72
			Std. Deviation	1,30	1,03	1,38	1,39	1,21
	American	12-13	Mean	3,25	4,04	3,00	2,88	4,21
			N	24	24	24	24	24
			Std. Deviation	1,39	1,12	1,32	1,65	1,10
		16-17	Mean	2,89	3,41	3,00	3,00	3,93
			N	28	27	28	28	28
			Std. Deviation	1,69	1,50	1,59	1,54	1,39
		20-21	Mean	3,25	4,08	3,75	4,00	4,50
			N	24	24	24	24	24
			Std. Deviation	1,11	1,02	1,22	1,10	,93
		Total	Mean	3,12	3,83	3,24	3,28	4,20
			N	76	75	76	76	76
			Std. Deviation	1,42	1,27	1,42	1,52	1,18

Report

gender	nationality	Age		interferes because I sing along	interferes because it makes me too aroused	listen with my favourite subject	listen with least favourite subject	learning a foreign language
male	Total	12-13	Mean	3,27	3,97	3,52	3,59	4,04
			N	103	103	103	102	102
			Std. Deviation	1,47	1,30	1,43	1,54	1,28
		16-17	Mean	3,23	4,05	3,23	3,17	3,80
			N	106	106	106	107	107
			Std. Deviation	1,49	1,30	1,45	1,46	1,33
		20-21	Mean	3,02	3,91	3,44	3,37	4,10
			N	90	88	89	90	88
			Std. Deviation	1,28	1,07	1,28	1,32	1,05
		Total	Mean	3,18	3,98	3,39	3,37	3,97
			N	299	297	298	299	297
			Std. Deviation	1,42	1,24	1,39	1,46	1,24
female	English	12-13	Mean	3,73	4,05	2,09	2,09	3,68
			N	22	21	22	22	22
			Std. Deviation	1,55	1,47	1,38	1,44	1,32
		16-17	Mean	3,52	3,93	3,36	3,14	3,93
			N	27	27	28	28	28
			Std. Deviation	1,22	1,21	1,52	1,46	1,41
		20-21	Mean	2,79	4,00	3,29	3,07	4,29
			N	28	28	28	28	28
			Std. Deviation	1,03	,94	1,18	1,18	,94
		Total	Mean	3,31	3,99	2,97	2,82	3,99
			N	77	76	78	78	78
			Std. Deviation	1,31	1,18	1,46	1,42	1,24
	Greek	12-13	Mean	2,63	3,30	3,58	3,75	3,37
			N	24	23	24	24	24
			Std. Deviation	1,50	1,52	1,74	1,51	1,41
		16-17	Mean	2,27	4,45	3,18	3,27	3,50
			N	22	22	22	22	22
			Std. Deviation	1,39	,80	1,56	1,70	1,34
		20-21	Mean	2,56	3,67	3,36	3,56	3,64
			N	25	24	25	25	25
			Std. Deviation	1,26	1,43	1,41	1,45	1,19
		Total	Mean	2,49	3,80	3,38	3,54	3,51
			N	71	69	71	71	71
			Std. Deviation	1,37	1,37	1,56	1,54	1,30
	Japanese	12-13	Mean	3,96	4,58	3,42	3,38	3,85
			N	26	26	26	26	26
			Std. Deviation	1,48	,95	1,42	1,58	1,41
		16-17	Mean	3,04	3,50	3,71	4,13	4,17
			N	24	24	24	24	24
			Std. Deviation	1,57	1,22	1,23	,99	1,17
		20-21	Mean	3,93	4,50	3,33	3,33	3,85
			N	27	26	27	27	27
			Std. Deviation	1,24	,91	1,18	1,33	1,10
		Total	Mean	3,66	4,21	3,48	3,60	3,95
			N	77	76	77	77	77
			Std. Deviation	1,47	1,12	1,27	1,36	1,22

Report

gender	nationality	Age		interferes because I sing along	interferes because it makes me too aroused	listen with my favourite subject	listen with least favourite subject	learning a foreign language
female	American	12-13	Mean	3,35	4,08	3,04	2,88	3,96
			N	26	26	26	26	26
			Std. Deviation	1,47	1,09	1,46	1,45	1,25
		16-17	Mean	3,33	4,29	3,27	2,68	4,05
			N	21	21	22	22	22
			Std. Deviation	1,46	1,10	1,49	1,59	1,09
		20-21	Mean	3,27	4,12	3,96	3,65	4,88
			N	26	26	26	26	24
			Std. Deviation	1,19	,99	1,11	1,16	,34
		Total	Mean	3,32	4,15	3,43	3,09	4,29
			N	73	73	74	74	72
			Std. Deviation	1,35	1,05	1,40	1,44	1,05
	Total	12-13	Mean	3,42	4,02	3,06	3,05	3,72
			N	98	96	98	98	98
			Std. Deviation	1,56	1,32	1,58	1,59	1,35
		16-17	Mean	3,06	4,02	3,39	3,31	3,92
			N	94	94	96	96	96
			Std. Deviation	1,47	1,15	1,45	1,52	1,27
		20-21	Mean	3,14	4,08	3,48	3,40	4,15
			N	106	104	106	106	104
			Std. Deviation	1,28	1,10	1,24	1,28	1,05
		Total	Mean	3,21	4,04	3,31	3,26	3,94
			N	298	294	300	300	298
			Std. Deviation	1,44	1,19	1,43	1,47	1,23
Total	English	12-13	Mean	3,50	3,88	2,92	3,04	4,16
			N	50	49	50	49	49
			Std. Deviation	1,53	1,33	1,58	1,63	1,21
		16-17	Mean	3,46	4,04	3,29	3,08	4,02
			N	48	49	49	50	50
			Std. Deviation	1,35	1,22	1,40	1,38	1,27
		20-21	Mean	2,84	3,84	3,26	3,18	4,29
			N	50	49	50	50	49
			Std. Deviation	1,08	1,07	1,21	1,21	,91
		Total	Mean	3,26	3,92	3,15	3,10	4,16
			N	148	147	149	149	148
			Std. Deviation	1,36	1,21	1,40	1,41	1,14
	Greek	12-13	Mean	2,61	3,60	3,82	3,94	3,65
			N	51	50	51	51	51
			Std. Deviation	1,46	1,58	1,53	1,45	1,44
		16-17	Mean	2,72	4,34	3,30	3,19	3,66
			N	53	53	53	53	53
			Std. Deviation	1,41	1,06	1,51	1,58	1,37
		20-21	Mean	2,50	3,73	3,29	3,13	3,72
			N	46	45	45	46	46
			Std. Deviation	1,30	1,30	1,41	1,53	1,24
		Total	Mean	2,61	3,91	3,48	3,43	3,67
			N	150	148	149	150	150
			Std. Deviation	1,38	1,36	1,50	1,56	1,35

Report

gender	nationality	Age		interferes because I sing along	interferes because it makes me too aroused	listen with my favourite subject	listen with least favourite subject	learning a foreign language
Total	Japanese	12-13	Mean	3,98	4,44	3,42	3,42	3,66
			N	50	50	50	50	50
			Std. Deviation	1,35	1,05	1,46	1,57	1,38
		16-17	Mean	3,38	3,94	3,50	3,82	3,78
			N	50	50	50	50	50
			Std. Deviation	1,47	1,20	1,34	1,27	1,30
		20-21	Mean	3,70	4,31	3,42	3,38	3,82
			N	50	48	50	50	49
			Std. Deviation	1,30	,90	1,18	1,23	,99
		Total	Mean	3,69	4,23	3,45	3,54	3,75
			N	150	148	150	150	149
			Std. Deviation	1,39	1,08	1,32	1,37	1,23
	American	12-13	Mean	3,30	4,06	3,02	2,88	4,08
			N	50	50	50	50	50
			Std. Deviation	1,42	1,10	1,38	1,53	1,18
		16-17	Mean	3,08	3,79	3,12	2,86	3,98
			N	49	48	50	50	50
			Std. Deviation	1,59	1,40	1,53	1,55	1,25
		20-21	Mean	3,26	4,10	3,86	3,82	4,69
			N	50	50	50	50	48
			Std. Deviation	1,14	,99	1,16	1,14	,72
		Total	Mean	3,21	3,99	3,33	3,19	4,24
			N	149	148	150	150	148
			Std. Deviation	1,39	1,17	1,41	1,48	1,12
	Total	12-13	Mean	3,34	3,99	3,30	3,33	3,88
			N	201	199	201	200	200
			Std. Deviation	1,51	1,31	1,52	1,59	1,32
		16-17	Mean	3,15	4,03	3,30	3,24	3,86
			N	200	200	202	203	203
			Std. Deviation	1,48	1,23	1,45	1,49	1,30
		20-21	Mean	3,09	4,00	3,46	3,38	4,13
			N	196	192	195	196	192
			Std. Deviation	1,28	1,09	1,25	1,30	1,05
		Total	Mean	3,19	4,01	3,35	3,31	3,95
			N	597	591	598	599	595
			Std. Deviation	1,43	1,21	1,41	1,46	1,23

Report

gender	nationality	Age		listen to my favourite music	songs that I know	music with fast tempo	music with slow tempo	songs
male	English	12-13	Mean	3,18	2,65	3,14	3,67	2,71
			N	28	26	28	27	28
			Std. Deviation	1,54	1,44	1,60	1,33	1,30
		16-17	Mean	2,50	2,59	2,95	3,32	2,95
			N	22	22	22	22	22
			Std. Deviation	1,57	1,26	1,25	1,25	1,59
		20-21	Mean	2,29	2,59	3,27	2,90	2,59
			N	21	22	22	21	22
			Std. Deviation	1,23	1,26	1,03	1,00	1,22
		Total	Mean	2,70	2,61	3,13	3,33	2,75
			N	71	70	72	70	72
			Std. Deviation	1,50	1,31	1,33	1,24	1,36
	Greek	12-13	Mean	3,93	3,33	3,22	3,81	3,28
			N	27	27	27	27	25
			Std. Deviation	1,52	1,62	1,55	1,33	1,49
		16-17	Mean	2,68	2,74	2,81	3,03	2,47
			N	31	31	31	31	30
			Std. Deviation	1,40	1,44	1,33	1,17	1,31
		20-21	Mean	2,29	2,14	2,29	2,67	2,26
			N	21	21	21	21	19
			Std. Deviation	1,10	,96	1,06	1,02	,99
		Total	Mean	3,00	2,78	2,81	3,20	2,69
			N	79	79	79	79	74
			Std. Deviation	1,52	1,46	1,38	1,26	1,35
	Japanese	12-13	Mean	2,33	2,54	2,88	3,54	2,79
			N	24	24	24	24	24
			Std. Deviation	1,52	1,64	1,51	1,69	1,74
		16-17	Mean	2,61	2,80	3,36	3,32	3,25
			N	23	25	25	25	24
			Std. Deviation	1,53	1,58	1,29	1,35	1,51
		20-21	Mean	2,45	2,87	3,04	3,30	2,91
			N	22	23	23	23	23
			Std. Deviation	1,50	1,52	1,40	1,15	1,31
		Total	Mean	2,46	2,74	3,10	3,39	2,99
			N	69	72	72	72	71
			Std. Deviation	1,50	1,57	1,40	1,40	1,53
	American	12-13	Mean	2,33	2,17	2,54	3,25	2,17
			N	24	24	24	24	24
			Std. Deviation	1,17	1,24	1,14	1,15	1,20
		16-17	Mean	2,41	2,54	2,96	3,79	3,00
			N	27	28	28	28	28
			Std. Deviation	1,67	1,67	1,60	1,34	1,68
		20-21	Mean	3,54	3,33	3,50	3,92	3,42
			N	24	24	24	24	24
			Std. Deviation	1,25	1,40	1,41	1,02	1,44
		Total	Mean	2,75	2,67	3,00	3,66	2,87
			N	75	76	76	76	76
			Std. Deviation	1,48	1,52	1,44	1,21	1,53

Report

gender	nationality	Age		listen to my favourite music	songs that I know	music with fast tempo	music with slow tempo	songs
male	Total	12-13	Mean	2,98	2,69	2,96	3,58	2,74
			N	103	101	103	102	101
			Std. Deviation	1,58	1,53	1,47	1,38	1,47
		16-17	Mean	2,55	2,67	3,01	3,36	2,89
			N	103	106	106	106	104
			Std. Deviation	1,52	1,48	1,38	1,29	1,53
		20-21	Mean	2,67	2,76	3,04	3,22	2,83
			N	88	90	90	89	88
			Std. Deviation	1,37	1,36	1,31	1,14	1,32
		Total	Mean	2,74	2,70	3,00	3,39	2,82
			N	294	297	299	297	293
			Std. Deviation	1,50	1,46	1,39	1,28	1,44
female	English	12-13	Mean	1,90	1,68	2,09	2,59	1,91
			N	20	22	22	22	22
			Std. Deviation	1,33	,99	1,15	1,10	1,23
		16-17	Mean	2,61	2,67	3,39	3,15	2,68
			N	28	27	28	27	28
			Std. Deviation	1,55	1,41	1,13	1,20	1,47
		20-21	Mean	2,68	2,54	3,36	3,14	2,75
			N	28	28	28	28	28
			Std. Deviation	1,09	1,14	1,13	1,04	1,04
		Total	Mean	2,45	2,34	3,01	2,99	2,49
			N	76	77	78	77	78
			Std. Deviation	1,36	1,26	1,26	1,13	1,30
	Greek	12-13	Mean	3,04	3,08	3,42	3,13	2,96
			N	24	24	24	24	23
			Std. Deviation	1,65	1,53	1,41	1,48	1,61
		16-17	Mean	2,27	2,32	3,32	2,77	2,55
			N	22	22	22	22	22
			Std. Deviation	1,42	1,39	1,43	1,41	1,44
		20-21	Mean	2,92	2,28	2,96	2,80	2,54
			N	25	25	25	25	24
			Std. Deviation	1,38	1,14	1,21	1,15	1,38
		Total	Mean	2,76	2,56	3,23	2,90	2,68
			N	71	71	71	71	69
			Std. Deviation	1,51	1,39	1,34	1,34	1,47
	Japanese	12-13	Mean	2,54	2,38	2,88	3,08	2,76
			N	26	26	26	26	25
			Std. Deviation	1,45	1,53	1,51	1,47	1,61
		16-17	Mean	3,27	2,92	3,96	3,54	3,17
			N	22	24	24	24	24
			Std. Deviation	1,64	1,74	1,27	1,53	1,74
		20-21	Mean	2,20	2,38	2,89	3,22	3,11
			N	25	26	27	27	27
			Std. Deviation	1,55	1,39	1,37	1,22	1,45
		Total	Mean	2,64	2,55	3,22	3,27	3,01
			N	73	76	77	77	76
			Std. Deviation	1,58	1,55	1,46	1,40	1,59

Report

gender	nationality	Age		listen to my favourite music	songs that I know	music with fast tempo	music with slow tempo	songs
female	American	12-13	Mean	1,92	2,00	2,15	3,08	1,92
			N	26	26	26	26	26
			Std. Deviation	1,26	1,30	1,19	1,26	1,26
		16-17	Mean	2,45	2,23	3,14	3,27	2,36
			N	22	22	22	22	22
			Std. Deviation	1,57	1,34	1,39	1,49	1,53
		20-21	Mean	3,56	3,19	3,58	3,50	3,23
			N	25	26	26	26	26
			Std. Deviation	1,29	1,27	1,21	1,21	1,21
		Total	Mean	2,64	2,49	2,95	3,28	2,51
			N	73	74	74	74	74
			Std. Deviation	1,52	1,39	1,38	1,31	1,43
	Total	12-13	Mean	2,36	2,30	2,64	2,98	2,39
			N	96	98	98	98	96
			Std. Deviation	1,49	1,44	1,42	1,34	1,50
		16-17	Mean	2,65	2,55	3,46	3,19	2,70
			N	94	95	96	95	96
			Std. Deviation	1,56	1,49	1,31	1,41	1,55
		20-21	Mean	2,83	2,60	3,20	3,17	2,91
			N	103	105	106	106	105
			Std. Deviation	1,40	1,27	1,25	1,17	1,29
		Total	Mean	2,62	2,48	3,10	3,11	2,67
			N	293	298	300	299	297
			Std. Deviation	1,49	1,40	1,36	1,30	1,46
Total	English	12-13	Mean	2,65	2,21	2,68	3,18	2,36
			N	48	48	50	49	50
			Std. Deviation	1,58	1,34	1,50	1,33	1,32
		16-17	Mean	2,56	2,63	3,20	3,22	2,80
			N	50	49	50	49	50
			Std. Deviation	1,54	1,33	1,20	1,21	1,51
		20-21	Mean	2,51	2,56	3,32	3,04	2,68
			N	49	50	50	49	50
			Std. Deviation	1,16	1,18	1,08	1,02	1,11
		Total	Mean	2,57	2,47	3,07	3,15	2,61
			N	147	147	150	147	150
			Std. Deviation	1,43	1,29	1,29	1,19	1,33
	Greek	12-13	Mean	3,51	3,22	3,31	3,49	3,13
			N	51	51	51	51	48
			Std. Deviation	1,63	1,57	1,48	1,43	1,54
		16-17	Mean	2,51	2,57	3,02	2,92	2,50
			N	53	53	53	53	52
			Std. Deviation	1,41	1,42	1,38	1,27	1,35
		20-21	Mean	2,63	2,22	2,65	2,74	2,42
			N	46	46	46	46	43
			Std. Deviation	1,29	1,05	1,18	1,08	1,22
		Total	Mean	2,89	2,68	3,01	3,06	2,69
			N	150	150	150	150	143
			Std. Deviation	1,51	1,43	1,37	1,31	1,41

Report

gender	nationality	Age		listen to my favourite music	songs that I know	music with fast tempo	music with slow tempo	songs
Total	Japanese	12-13	Mean	2,44	2,46	2,88	3,30	2,78
			N	50	50	50	50	49
			Std. Deviation	1,47	1,57	1,49	1,58	1,66
		16-17	Mean	2,93	2,86	3,65	3,43	3,21
			N	45	49	49	49	48
			Std. Deviation	1,60	1,65	1,30	1,43	1,61
		20-21	Mean	2,32	2,61	2,96	3,26	3,02
			N	47	49	50	50	50
			Std. Deviation	1,52	1,46	1,37	1,17	1,38
		Total	Mean	2,56	2,64	3,16	3,33	3,00
			N	142	148	149	149	147
			Std. Deviation	1,54	1,56	1,42	1,40	1,55
	American	12-13	Mean	2,12	2,08	2,34	3,16	2,04
			N	50	50	50	50	50
			Std. Deviation	1,22	1,26	1,17	1,20	1,23
		16-17	Mean	2,43	2,40	3,04	3,56	2,72
			N	49	50	50	50	50
			Std. Deviation	1,61	1,53	1,50	1,42	1,63
		20-21	Mean	3,55	3,26	3,54	3,70	3,32
			N	49	50	50	50	50
			Std. Deviation	1,26	1,32	1,30	1,13	1,32
		Total	Mean	2,70	2,58	2,97	3,47	2,69
			N	148	150	150	150	150
			Std. Deviation	1,50	1,45	1,41	1,27	1,49
	Total	12-13	Mean	2,68	2,50	2,81	3,28	2,57
			N	199	199	201	200	197
			Std. Deviation	1,56	1,50	1,45	1,39	1,49
		16-17	Mean	2,60	2,61	3,22	3,28	2,80
			N	197	201	202	201	200
			Std. Deviation	1,54	1,48	1,36	1,35	1,54
		20-21	Mean	2,76	2,67	3,13	3,19	2,88
			N	191	195	196	195	193
			Std. Deviation	1,39	1,31	1,27	1,15	1,30
		Total	Mean	2,68	2,59	3,05	3,25	2,75
			N	587	595	599	596	590
			Std. Deviation	1,50	1,43	1,37	1,30	1,45

Report

gender	nationality	Age		loud music	instrumetn al music	calming music	arousing music	classical
male	English	12-13	Mean	3,29	3,78	3,64	4,18	4,32
			N	28	27	28	28	28
			Std. Deviation	1,70	1,45	1,39	1,19	1,06
		16-17	Mean	2,91	3,45	3,59	4,14	4,45
			N	22	22	22	22	22
			Std. Deviation	1,38	1,53	1,26	,89	,86
		20-21	Mean	3,27	3,59	3,45	3,38	3,91
			N	22	22	22	21	22
			Std. Deviation	1,16	1,10	1,18	1,24	1,38
		Total	Mean	3,17	3,62	3,57	3,93	4,24
			N	72	71	72	71	72
			Std. Deviation	1,44	1,37	1,28	1,16	1,12
	Greek	12-13	Mean	3,52	3,96	3,56	2,89	4,00
			N	27	27	27	27	27
			Std. Deviation	1,65	1,13	1,09	1,55	1,39
		16-17	Mean	3,68	3,52	3,29	2,90	4,50
			N	31	31	31	31	30
			Std. Deviation	1,33	1,23	1,16	1,35	,82
		20-21	Mean	2,30	3,29	3,52	2,52	4,05
			N	20	21	21	21	21
			Std. Deviation	1,26	1,31	1,03	,93	,97
		Total	Mean	3,27	3,61	3,44	2,80	4,21
			N	78	79	79	79	78
			Std. Deviation	1,53	1,23	1,09	1,32	1,10
	Japanese	12-13	Mean	3,25	4,29	3,63	3,75	4,63
			N	24	24	24	24	24
			Std. Deviation	1,48	1,16	1,58	1,39	,77
		16-17	Mean	3,64	3,92	3,52	3,72	4,08
			N	25	24	25	25	25
			Std. Deviation	1,35	1,25	1,42	1,06	1,12
		20-21	Mean	3,83	4,41	3,68	3,50	4,45
			N	23	22	22	22	22
			Std. Deviation	1,53	1,01	1,21	1,47	1,06
		Total	Mean	3,57	4,20	3,61	3,66	4,38
			N	72	70	71	71	71
			Std. Deviation	1,45	1,15	1,40	1,30	1,01
	American	12-13	Mean	2,54	3,88	3,79	3,42	4,38
			N	24	24	24	24	24
			Std. Deviation	1,28	1,19	1,14	1,14	,97
		16-17	Mean	3,00	3,86	3,75	3,68	4,14
			N	28	28	28	28	28
			Std. Deviation	1,76	1,43	1,58	1,63	1,30
		20-21	Mean	3,87	4,29	3,83	4,25	4,54
			N	24	24	24	24	24
			Std. Deviation	1,26	,95	1,27	,94	,83
		Total	Mean	3,13	4,00	3,79	3,78	4,34
			N	76	76	76	76	76
			Std. Deviation	1,55	1,22	1,34	1,32	1,07

Report

gender	nationality	Age		loud music	instrumetn al music	calming music	arousing music	classical
male	Total	12-13	Mean	3,17	3,97	3,65	3,56	4,32
			N	103	102	103	103	103
			Std. Deviation	1,57	1,24	1,30	1,40	1,09
		16-17	Mean	3,33	3,69	3,53	3,56	4,30
			N	106	105	106	106	105
			Std. Deviation	1,49	1,35	1,35	1,35	1,05
		20-21	Mean	3,36	3,91	3,63	3,44	4,25
			N	89	89	89	88	89
			Std. Deviation	1,43	1,17	1,17	1,30	1,09
		Total	Mean	3,28	3,85	3,60	3,53	4,29
			N	298	296	298	297	297
			Std. Deviation	1,50	1,26	1,28	1,35	1,07
female	English	12-13	Mean	2,86	4,40	3,52	3,73	3,95
			N	22	20	21	22	21
			Std. Deviation	1,49	,94	1,50	1,24	1,47
		16-17	Mean	3,63	4,18	3,46	3,93	4,61
			N	27	28	28	27	28
			Std. Deviation	1,33	1,09	1,17	1,27	,63
		20-21	Mean	4,07	3,68	3,46	3,86	4,07
			N	28	28	28	28	28
			Std. Deviation	,86	1,09	1,00	,85	1,02
		Total	Mean	3,57	4,05	3,48	3,84	4,23
			N	77	76	77	77	77
			Std. Deviation	1,31	1,08	1,20	1,11	1,07
	Greek	12-13	Mean	3,79	4,29	3,37	3,29	3,92
			N	24	24	24	24	24
			Std. Deviation	1,44	,95	1,21	1,49	1,25
		16-17	Mean	3,73	3,50	2,91	3,73	4,05
			N	22	22	22	22	22
			Std. Deviation	1,35	1,37	1,34	1,20	1,13
		20-21	Mean	2,88	3,44	3,28	3,08	3,76
			N	25	25	25	25	25
			Std. Deviation	1,36	1,08	1,24	1,04	1,48
		Total	Mean	3,45	3,75	3,20	3,35	3,90
			N	71	71	71	71	71
			Std. Deviation	1,43	1,19	1,26	1,27	1,29
	Japanese	12-13	Mean	3,65	4,35	3,62	3,77	3,81
			N	26	26	26	26	26
			Std. Deviation	1,47	,94	1,24	1,48	1,20
		16-17	Mean	4,00	4,12	3,71	4,17	4,00
			N	24	24	24	24	24
			Std. Deviation	1,29	1,23	1,52	,96	1,62
		20-21	Mean	3,78	4,15	3,63	3,89	4,37
			N	27	27	27	27	27
			Std. Deviation	1,25	1,06	1,21	1,12	1,04
		Total	Mean	3,81	4,21	3,65	3,94	4,06
			N	77	77	77	77	77
			Std. Deviation	1,33	1,07	1,31	1,21	1,30

Report

gender	nationality	Age		loud music	instrumetn al music	calming music	arousing music	classical
female	American	12-13	Mean	3,00	3,85	3,58	3,54	4,19
			N	26	26	26	26	26
			Std. Deviation	1,60	1,35	1,36	1,36	1,17
		16-17	Mean	3,32	4,23	3,86	4,05	4,18
			N	22	22	22	22	22
			Std. Deviation	1,59	1,07	1,21	1,25	1,37
		20-21	Mean	4,42	3,96	3,62	4,35	4,12
			N	26	26	26	26	26
			Std. Deviation	,86	1,18	1,13	,89	,91
		Total	Mean	3,59	4,00	3,68	3,97	4,16
			N	74	74	74	74	74
			Std. Deviation	1,50	1,21	1,23	1,22	1,14
	Total	12-13	Mean	3,34	4,21	3,53	3,58	3,97
			N	98	96	97	98	97
			Std. Deviation	1,53	1,08	1,31	1,39	1,25
		16-17	Mean	3,67	4,02	3,49	3,97	4,23
			N	95	96	96	95	96
			Std. Deviation	1,39	1,21	1,34	1,17	1,23
		20-21	Mean	3,80	3,81	3,50	3,80	4,08
			N	106	106	106	106	106
			Std. Deviation	1,22	1,12	1,14	1,06	1,13
		Total	Mean	3,61	4,01	3,51	3,78	4,09
			N	299	298	299	299	299
			Std. Deviation	1,39	1,14	1,26	1,22	1,20
Total	English	12-13	Mean	3,10	4,04	3,59	3,98	4,16
			N	50	47	49	50	49
			Std. Deviation	1,61	1,28	1,43	1,22	1,25
		16-17	Mean	3,31	3,86	3,52	4,02	4,54
			N	49	50	50	49	50
			Std. Deviation	1,39	1,34	1,20	1,11	,73
		20-21	Mean	3,72	3,64	3,46	3,65	4,00
			N	50	50	50	49	50
			Std. Deviation	1,07	1,08	1,07	1,05	1,18
		Total	Mean	3,38	3,84	3,52	3,89	4,23
			N	149	147	149	148	149
			Std. Deviation	1,39	1,24	1,23	1,13	1,09
	Greek	12-13	Mean	3,65	4,12	3,47	3,08	3,96
			N	51	51	51	51	51
			Std. Deviation	1,55	1,05	1,14	1,52	1,31
		16-17	Mean	3,70	3,51	3,13	3,25	4,31
			N	53	53	53	53	52
			Std. Deviation	1,32	1,28	1,24	1,34	,98
		20-21	Mean	2,62	3,37	3,39	2,83	3,89
			N	45	46	46	46	46
			Std. Deviation	1,34	1,18	1,14	1,02	1,27
		Total	Mean	3,36	3,67	3,33	3,06	4,06
			N	149	150	150	150	149
			Std. Deviation	1,48	1,21	1,18	1,32	1,20

Report

gender	nationality	Age		loud music	instrumetn al music	calming music	arousing music	classical
Total	Japanese	12-13	Mean	3,46	4,32	3,62	3,76	4,20
			N	50	50	50	50	50
			Std. Deviation	1,47	1,04	1,40	1,42	1,09
		16-17	Mean	3,82	4,02	3,61	3,94	4,04
			N	49	48	49	49	49
			Std. Deviation	1,32	1,23	1,46	1,03	1,37
		20-21	Mean	3,80	4,27	3,65	3,71	4,41
			N	50	49	49	49	49
			Std. Deviation	1,37	1,04	1,20	1,29	1,04
		Total	Mean	3,69	4,20	3,63	3,80	4,22
			N	149	147	148	148	148
			Std. Deviation	1,39	1,10	1,35	1,25	1,18
	American	12-13	Mean	2,78	3,86	3,68	3,48	4,28
			N	50	50	50	50	50
			Std. Deviation	1,46	1,26	1,25	1,25	1,07
		16-17	Mean	3,14	4,02	3,80	3,84	4,16
			N	50	50	50	50	50
			Std. Deviation	1,68	1,29	1,41	1,48	1,31
		20-21	Mean	4,16	4,12	3,72	4,30	4,32
			N	50	50	50	50	50
			Std. Deviation	1,09	1,08	1,20	,91	,89
		Total	Mean	3,36	4,00	3,73	3,87	4,25
			N	150	150	150	150	150
			Std. Deviation	1,54	1,21	1,28	1,27	1,10
	Total	12-13	Mean	3,25	4,09	3,59	3,57	4,15
			N	201	198	200	201	200
			Std. Deviation	1,55	1,17	1,30	1,39	1,18
		16-17	Mean	3,49	3,85	3,51	3,75	4,26
			N	201	201	202	201	201
			Std. Deviation	1,45	1,29	1,34	1,28	1,13
		20-21	Mean	3,60	3,86	3,56	3,64	4,16
			N	195	195	195	194	195
			Std. Deviation	1,34	1,14	1,15	1,19	1,11
		Total	Mean	3,45	3,93	3,55	3,65	4,19
			N	597	594	597	596	596
			Std. Deviation	1,45	1,21	1,27	1,29	1,14

Report

gender	nationality	Age		rock	blues	country	easy listening	folk/world music
male	English	12-13	Mean	4,18	4,36	4,19	3,93	4,04
			N	28	28	27	28	27
			Std. Deviation	1,02	,99	1,08	1,18	1,19
		16-17	Mean	4,09	4,50	4,50	3,91	4,41
			N	22	22	22	22	22
			Std. Deviation	1,34	,80	1,06	1,15	1,22
		20-21	Mean	3,05	3,64	4,45	4,05	4,41
			N	22	22	22	22	22
			Std. Deviation	1,36	1,09	,74	,95	,73
		Total	Mean	3,81	4,18	4,37	3,96	4,27
			N	72	72	71	72	71
			Std. Deviation	1,32	1,03	,97	1,09	1,08
	Greek	12-13	Mean	2,78	3,56	4,22		
			N	27	27	27		
			Std. Deviation	1,53	1,50	1,19		
		16-17	Mean	2,87	3,97	4,77		
			N	31	31	31		
			Std. Deviation	1,52	1,28	,43		
		20-21	Mean	2,67	3,33	4,24		
			N	21	21	21		
			Std. Deviation	1,11	1,06	,89		
		Total	Mean	2,78	3,66	4,44		
			N	79	79	79		
			Std. Deviation	1,41	1,32	,90		
	Japanese	12-13	Mean	3,71				
			N	24				
			Std. Deviation	1,43				
		16-17	Mean	3,44				
			N	25				
			Std. Deviation	1,45				
		20-21	Mean	3,59				
			N	22				
			Std. Deviation	1,33				
		Total	Mean	3,58				
			N	71				
			Std. Deviation	1,39				
	American	12-13	Mean	2,21	4,17	4,63	4,21	4,67
			N	24	24	24	24	24
			Std. Deviation	,98	1,01	,97	1,02	,76
		16-17	Mean	2,96	4,21	3,14	4,18	4,32
			N	28	28	28	28	28
			Std. Deviation	1,77	1,29	1,76	1,36	1,06
		20-21	Mean	3,67	4,58	3,67	4,29	4,63
			N	24	24	24	24	24
			Std. Deviation	1,27	,65	1,52	,95	,77
		Total	Mean	2,95	4,32	3,78	4,22	4,53
			N	76	76	76	76	76
			Std. Deviation	1,50	1,04	1,58	1,13	,89

Report

gender	nationality	Age		rock	blues	country	easy listening	folk/world music
male	Total	12-13	Mean	3,24	4,03	4,33	4,06	4,33
			N	103	79	78	52	51
			Std. Deviation	1,47	1,23	1,09	1,11	1,05
		16-17	Mean	3,28	4,20	4,14	4,06	4,36
			N	106	81	81	50	50
			Std. Deviation	1,59	1,18	1,39	1,27	1,12
		20-21	Mean	3,26	3,88	4,10	4,17	4,52
			N	89	67	67	46	46
			Std. Deviation	1,32	1,08	1,16	,95	,75
		Total	Mean	3,26	4,04	4,19	4,09	4,40
			N	298	227	226	148	147
			Std. Deviation	1,47	1,17	1,22	1,11	,99
female	English	12-13	Mean	3,65	4,55	4,59	3,40	3,95
			N	20	22	22	20	21
			Std. Deviation	1,31	,80	,91	1,27	1,43
		16-17	Mean	4,61	4,71	4,71	3,82	4,61
			N	28	28	28	28	28
			Std. Deviation	,83	,60	,71	1,28	,79
		20-21	Mean	3,43	4,25	4,61	3,48	4,44
			N	28	28	28	27	27
			Std. Deviation	1,17	,89	,74	,98	1,01
		Total	Mean	3,92	4,50	4,64	3,59	4,37
			N	76	78	78	75	76
			Std. Deviation	1,21	,79	,77	1,18	1,09
	Greek	12-13	Mean	2,79	3,50	4,50		
			N	24	24	24		
			Std. Deviation	1,53	1,41	,72		
		16-17	Mean	3,23	3,36	4,18		
			N	22	22	22		
			Std. Deviation	1,27	1,29	,91		
		20-21	Mean	2,88	3,28	3,92		
			N	25	25	25		
			Std. Deviation	1,30	1,17	1,19		
		Total	Mean	2,96	3,38	4,20		
			N	71	71	71		
			Std. Deviation	1,37	1,28	,98		
	Japanese	12-13	Mean	4,27				
			N	26				
			Std. Deviation	,92				
		16-17	Mean	3,78				
			N	23				
			Std. Deviation	1,38				
		20-21	Mean	3,93				
			N	27				
			Std. Deviation	1,21				
		Total	Mean	4,00				
			N	76				
			Std. Deviation	1,18				

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gender	nationality	Age		rock	blues	country	easy listening	folk/world music
female	American	12-13	Mean	2,85	4,46	3,76	3,46	4,69
			N	26	26	25	26	26
			Std. Deviation	1,46	,81	1,51	1,36	,74
		16-17	Mean	3,05	4,41	3,45	3,82	4,41
			N	22	22	22	22	22
			Std. Deviation	1,50	1,10	1,65	1,40	1,22
		20-21	Mean	3,46	4,27	4,12	3,50	4,56
			N	26	26	26	26	25
			Std. Deviation	1,30	,92	1,18	1,14	,77
		Total	Mean	3,12	4,38	3,79	3,58	4,56
			N	74	74	73	74	73
			Std. Deviation	1,42	,93	1,45	1,29	,91
	Total	12-13	Mean	3,39	4,17	4,27	3,43	4,36
			N	96	72	71	46	47
			Std. Deviation	1,45	1,14	1,16	1,31	1,15
		16-17	Mean	3,73	4,21	4,17	3,82	4,52
			N	95	72	72	50	50
			Std. Deviation	1,38	1,15	1,23	1,32	,99
		20-21	Mean	3,43	3,95	4,23	3,49	4,50
			N	106	79	79	53	52
			Std. Deviation	1,28	1,08	1,07	1,05	,90
		Total	Mean	3,51	4,10	4,22	3,58	4,46
			N	297	223	222	149	149
			Std. Deviation	1,37	1,12	1,15	1,23	1,01
Total	English	12-13	Mean	3,96	4,44	4,37	3,71	4,00
			N	48	50	49	48	48
			Std. Deviation	1,17	,91	1,01	1,24	1,29
		16-17	Mean	4,38	4,62	4,62	3,86	4,52
			N	50	50	50	50	50
			Std. Deviation	1,10	,70	,88	1,21	,99
		20-21	Mean	3,26	3,98	4,54	3,73	4,43
			N	50	50	50	49	49
			Std. Deviation	1,26	1,02	,73	1,00	,89
		Total	Mean	3,86	4,35	4,51	3,77	4,32
			N	148	150	149	147	147
			Std. Deviation	1,26	,92	,88	1,15	1,09
	Greek	12-13	Mean	2,78	3,53	4,35		
			N	51	51	51		
			Std. Deviation	1,51	1,45	1,00		
		16-17	Mean	3,02	3,72	4,53		
			N	53	53	53		
			Std. Deviation	1,42	1,31	,72		
		20-21	Mean	2,78	3,30	4,07		
			N	46	46	46		
			Std. Deviation	1,21	1,11	1,06		
		Total	Mean	2,87	3,53	4,33		
			N	150	150	150		
			Std. Deviation	1,39	1,30	,94		

Report

gender	nationality	Age		rock	blues	country	easy listening	folk/world music
Total	Japanese	12-13	Mean	4,00				
			N	50				
			Std. Deviation	1,21				
		16-17	Mean	3,60				
			N	48				
			Std. Deviation	1,41				
		20-21	Mean	3,78				
			N	49				
			Std. Deviation	1,26				
		Total	Mean	3,80				
			N	147				
			Std. Deviation	1,30				
	American	12-13	Mean	2,54	4,32	4,18	3,82	4,68
			N	50	50	49	50	50
			Std. Deviation	1,28	,91	1,33	1,26	,74
		16-17	Mean	3,00	4,30	3,28	4,02	4,36
			N	50	50	50	50	50
			Std. Deviation	1,64	1,20	1,70	1,38	1,12
		20-21	Mean	3,56	4,42	3,90	3,88	4,59
			N	50	50	50	50	49
			Std. Deviation	1,28	,81	1,36	1,12	,76
		Total	Mean	3,03	4,35	3,79	3,91	4,54
			N	150	150	149	150	149
			Std. Deviation	1,46	,98	1,51	1,25	,90
	Total	12-13	Mean	3,31	4,09	4,30	3,77	4,35
			N	199	151	149	98	98
			Std. Deviation	1,45	1,19	1,12	1,24	1,09
		16-17	Mean	3,49	4,20	4,15	3,94	4,44
			N	201	153	153	100	100
			Std. Deviation	1,51	1,16	1,32	1,29	1,06
		20-21	Mean	3,35	3,92	4,17	3,81	4,51
			N	195	146	146	99	98
			Std. Deviation	1,30	1,08	1,11	1,06	,83
		Total	Mean	3,39	4,07	4,21	3,84	4,43
			N	595	450	448	297	296
			Std. Deviation	1,42	1,15	1,19	1,20	1,00

Report

gender	nationality	Age		raggae	pop	soul	dance	gospel
male	English	12-13	Mean	3,29	3,00	3,43	3,71	3,64
			N	28	28	28	28	28
			Std. Deviation	1,36	1,41	1,40	1,46	1,39
		16-17	Mean	3,73	2,81	2,67	3,10	4,40
			N	22	21	21	20	20
			Std. Deviation	1,35	1,36	1,46	1,41	,88
		20-21	Mean	3,91	2,95	2,73	3,45	4,32
			N	22	22	22	22	22
			Std. Deviation	,97	1,21	1,24	,96	1,13
		Total	Mean	3,61	2,93	2,99	3,46	4,07
			N	72	71	71	70	70
			Std. Deviation	1,26	1,32	1,40	1,32	1,22
	Greek	12-13	Mean		2,93	4,33		
			N		27	27		
			Std. Deviation		1,62	1,11		
		16-17	Mean		3,55	4,06		
			N		31	31		
			Std. Deviation		1,23	1,26		
		20-21	Mean		3,33	3,62		
			N		21	21		
			Std. Deviation		1,24	1,20		
		Total	Mean		3,28	4,04		
			N		79	79		
			Std. Deviation		1,39	1,21		
	Japanese	12-13	Mean					
			N					
			Std. Deviation					
		16-17	Mean					
			N					
			Std. Deviation					
		20-21	Mean					
			N					
			Std. Deviation					
		Total	Mean					
			N					
			Std. Deviation					
	American	12-13	Mean	4,42	2,75	4,17	3,29	4,61
			N	24	24	24	24	23
			Std. Deviation	,83	1,19	,96	1,33	,78
		16-17	Mean	4,18	4,07	4,54	4,29	4,39
			N	28	28	28	28	28
			Std. Deviation	1,25	1,49	1,07	1,36	1,20
		20-21	Mean	4,46	3,96	4,58	4,17	4,88
			N	24	24	24	24	24
			Std. Deviation	,98	1,27	,83	1,05	,45
		Total	Mean	4,34	3,62	4,43	3,93	4,61
			N	76	76	76	76	75
			Std. Deviation	1,04	1,44	,97	1,32	,90

Report

gender	nationality	Age		raggae	pop	soul	dance	gospel
male	Total	12-13	Mean	3,81	2,90	3,96	3,52	4,08
			N	52	79	79	52	51
			Std. Deviation	1,27	1,41	1,23	1,41	1,25
		16-17	Mean	3,98	3,54	3,86	3,79	4,40
			N	50	80	80	48	48
			Std. Deviation	1,30	1,43	1,45	1,49	1,07
		20-21	Mean	4,20	3,43	3,67	3,83	4,61
			N	46	67	67	46	46
			Std. Deviation	1,00	1,29	1,33	1,06	,88
		Total	Mean	3,99	3,28	3,84	3,71	4,35
			N	148	226	226	146	145
			Std. Deviation	1,21	1,41	1,34	1,33	1,10
female	English	12-13	Mean	3,25	2,59	2,32	2,38	3,14
			N	20	22	22	21	22
			Std. Deviation	1,48	1,53	1,36	1,28	1,55
		16-17	Mean	3,61	3,11	2,43	3,32	3,96
			N	28	28	28	28	28
			Std. Deviation	1,31	1,29	1,32	1,19	1,10
		20-21	Mean	4,36	2,96	3,33	3,11	4,64
			N	28	28	27	28	28
			Std. Deviation	,83	,96	1,21	1,31	,68
		Total	Mean	3,79	2,91	2,71	2,99	3,97
			N	76	78	77	77	78
			Std. Deviation	1,28	1,26	1,36	1,30	1,27
	Greek	12-13	Mean		2,96	4,42		
			N		24	24		
			Std. Deviation		1,43	,88		
		16-17	Mean		3,64	3,86		
			N		22	22		
			Std. Deviation		1,18	1,25		
		20-21	Mean		3,36	3,68		
			N		25	25		
			Std. Deviation		1,15	1,14		
		Total	Mean		3,31	3,99		
			N		71	71		
			Std. Deviation		1,27	1,13		
	Japanese	12-13	Mean					
			N					
			Std. Deviation					
		16-17	Mean					
			N					
			Std. Deviation					
		20-21	Mean					
			N					
			Std. Deviation					
		Total	Mean					
			N					
			Std. Deviation					

Report

gender	nationality	Age		raggae	pop	soul	dance	gospel
female	American	12-13	Mean	4,46	2,35	4,00	2,69	4,38
			N	26	26	26	26	26
			Std. Deviation	,81	1,41	,98	1,49	,80
		16-17	Mean	4,41	3,23	4,18	3,50	4,43
			N	22	22	22	22	21
			Std. Deviation	1,26	1,72	1,40	1,68	1,08
		20-21	Mean	4,46	3,23	4,23	3,92	4,85
			N	26	26	26	26	26
			Std. Deviation	,90	1,14	,95	1,13	,37
		Total	Mean	4,45	2,92	4,14	3,36	4,56
			N	74	74	74	74	73
			Std. Deviation	,98	1,47	1,10	1,51	,80
	Total	12-13	Mean	3,93	2,62	3,62	2,55	3,81
			N	46	72	72	47	48
			Std. Deviation	1,29	1,46	1,39	1,40	1,35
		16-17	Mean	3,96	3,31	3,40	3,40	4,16
			N	50	72	72	50	49
			Std. Deviation	1,34	1,40	1,53	1,41	1,11
		20-21	Mean	4,41	3,18	3,74	3,50	4,74
			N	54	79	78	54	54
			Std. Deviation	,86	1,08	1,16	1,28	,56
		Total	Mean	4,11	3,04	3,59	3,17	4,26
			N	150	223	222	151	151
			Std. Deviation	1,18	1,34	1,36	1,42	1,10
Total	English	12-13	Mean	3,27	2,82	2,94	3,14	3,42
			N	48	50	50	49	50
			Std. Deviation	1,40	1,47	1,48	1,53	1,47
		16-17	Mean	3,66	2,98	2,53	3,23	4,15
			N	50	49	49	48	48
			Std. Deviation	1,32	1,31	1,37	1,28	1,03
		20-21	Mean	4,16	2,96	3,06	3,26	4,50
			N	50	50	49	50	50
			Std. Deviation	,91	1,07	1,25	1,17	,91
		Total	Mean	3,70	2,92	2,84	3,21	4,02
			N	148	149	148	147	148
			Std. Deviation	1,27	1,29	1,38	1,33	1,24
	Greek	12-13	Mean		2,94	4,37		
			N		51	51		
			Std. Deviation		1,52	1,00		
		16-17	Mean		3,58	3,98		
			N		53	53		
			Std. Deviation		1,20	1,25		
		20-21	Mean		3,35	3,65		
			N		46	46		
			Std. Deviation		1,18	1,16		
		Total	Mean		3,29	4,01		
			N		150	150		
			Std. Deviation		1,33	1,17		

Report

gender	nationality	Age		raggae	pop	soul	dance	gospel
Total	Japanese	12-13	Mean					
			N					
			Std. Deviation					
		16-17	Mean					
			N					
			Std. Deviation					
		20-21	Mean					
			N					
			Std. Deviation					
		Total	Mean					
			N					
			Std. Deviation					
	American	12-13	Mean	4,44	2,54	4,08	2,98	4,49
			N	50	50	50	50	49
			Std. Deviation	,81	1,31	,97	1,44	,79
		16-17	Mean	4,28	3,70	4,38	3,94	4,41
			N	50	50	50	50	49
			Std. Deviation	1,25	1,63	1,23	1,54	1,14
		20-21	Mean	4,46	3,58	4,40	4,04	4,86
			N	50	50	50	50	50
			Std. Deviation	,93	1,25	,90	1,09	,40
		Total	Mean	4,39	3,27	4,29	3,65	4,59
			N	150	150	150	150	148
			Std. Deviation	1,01	1,49	1,04	1,44	,85
	Total	12-13	Mean	3,87	2,77	3,80	3,06	3,95
			N	98	151	151	99	99
			Std. Deviation	1,27	1,44	1,32	1,48	1,30
		16-17	Mean	3,97	3,43	3,64	3,59	4,28
			N	100	152	152	98	97
			Std. Deviation	1,31	1,42	1,50	1,46	1,09
		20-21	Mean	4,31	3,29	3,71	3,65	4,68
			N	100	146	145	100	100
			Std. Deviation	,93	1,19	1,24	1,19	,72
		Total	Mean	4,05	3,16	3,72	3,43	4,30
			N	298	449	448	297	296
			Std. Deviation	1,20	1,38	1,35	1,40	1,10

Report

gender	nationality	Age		jazz	radio	recorded music	happy	bored
male	English	12-13	Mean	3,22	3,32	3,07	3,32	2,75
			N	27	28	28	28	28
			Std. Deviation	1,42	1,33	1,33	1,28	1,35
		16-17	Mean	4,10	3,00	2,52	2,14	2,71
			N	21	21	21	21	21
			Std. Deviation	1,34	1,48	1,50	1,20	1,55
		20-21	Mean	3,82	2,86	2,18	2,55	2,77
			N	22	22	22	22	22
			Std. Deviation	,96	1,25	1,26	1,30	1,23
		Total	Mean	3,67	3,08	2,63	2,73	2,75
			N	70	71	71	71	71
			Std. Deviation	1,30	1,35	1,40	1,34	1,36
	Greek	12-13	Mean	3,88	4,44	4,16	2,93	3,41
			N	26	27	25	27	27
			Std. Deviation	1,31	1,01	1,25	1,41	1,67
		16-17	Mean	4,45	3,06	3,03	2,42	3,06
			N	31	31	30	31	31
			Std. Deviation	1,03	1,21	1,40	1,36	1,41
		20-21	Mean	3,81	2,33	3,33	2,57	2,76
			N	21	21	21	21	21
			Std. Deviation	1,03	,97	1,11	1,25	1,22
		Total	Mean	4,09	3,34	3,49	2,63	3,10
			N	78	79	76	79	79
			Std. Deviation	1,15	1,37	1,35	1,35	1,46
	Japanese	12-13	Mean		4,17	3,12	3,71	2,75
			N		24	24	24	24
			Std. Deviation		1,05	1,65	1,43	1,48
		16-17	Mean		3,54	3,17	2,95	3,08
			N		24	24	22	24
			Std. Deviation		1,47	1,40	1,50	1,32
		20-21	Mean		4,45	3,68	2,71	2,05
			N		22	22	21	22
			Std. Deviation		,80	1,36	1,38	1,21
		Total	Mean		4,04	3,31	3,15	2,64
			N		70	70	67	70
			Std. Deviation		1,20	1,48	1,48	1,39
	American	12-13	Mean	4,13	2,79	3,21	2,33	2,33
			N	24	24	24	24	24
			Std. Deviation	,90	1,47	1,25	1,27	1,20
		16-17	Mean	4,25	2,93	2,93	2,89	2,74
			N	28	28	28	27	27
			Std. Deviation	1,17	1,63	1,63	1,65	1,63
		20-21	Mean	4,58	3,38	3,54	3,37	3,25
			N	24	24	24	24	24
			Std. Deviation	,72	1,47	1,25	1,50	1,26
		Total	Mean	4,32	3,03	3,21	2,87	2.77
			N	76	76	76	75	75
			Std. Deviation	,97	1,53	1,41	1,53	1,42

Report

gender	nationality	Age		jazz	radio	recorded music	happy	bored
male	Total	12-13	Mean	3,73	3,69	3,39	3,08	2,83
			N	77	103	101	103	103
			Std. Deviation	1,28	1,38	1,43	1,42	1,47
		16-17	Mean	4,29	3,12	2,93	2,60	2,91
			N	80	104	103	101	103
			Std. Deviation	1,16	1,45	1,48	1,46	1,47
		20-21	Mean	4,09	3,27	3,19	2,82	2,72
			N	67	89	89	88	89
			Std. Deviation	,97	1,38	1,36	1,39	1,29
		Total	Mean	4,04	3,36	3,17	2,84	2,82
			N	224	296	293	292	295
			Std. Deviation	1,17	1,42	1,44	1,43	1,42
female	English	12-13	Mean	3,57	2,59	2,45	1,68	1,45
			N	21	22	22	22	22
			Std. Deviation	1,08	1,22	1,34	,72	,91
		16-17	Mean	4,29	2,75	2,86	2,07	2,18
			N	28	28	28	27	28
			Std. Deviation	1,18	1,14	1,35	1,33	1,25
		20-21	Mean	4,18	2,50	2,50	2,68	2,54
			N	28	28	28	28	28
			Std. Deviation	,77	1,20	1,04	,98	1,04
		Total	Mean	4,05	2,62	2,62	2,18	2,10
			N	77	78	78	77	78
			Std. Deviation	1,05	1,18	1,24	1,12	1,16
	Greek	12-13	Mean	3,79	3,58	3,63	2,63	3,54
			N	24	24	24	24	24
			Std. Deviation	1,28	1,50	1,31	1,38	1,53
		16-17	Mean	4,36	2,41	2,95	1,91	2,95
			N	22	22	22	22	22
			Std. Deviation	,90	1,14	1,40	1,11	1,59
		20-21	Mean	4,04	2,88	3,52	2,80	2,76
			N	25	25	25	25	25
			Std. Deviation	,93	1,36	1,08	1,44	1,42
		Total	Mean	4,06	2,97	3,38	2,46	3,08
			N	71	71	71	71	71
			Std. Deviation	1,07	1,41	1,28	1,36	1,53
	Japanese	12-13	Mean		4,15	3,50	2,85	2,36
			N		26	26	26	25
			Std. Deviation		1,26	1,42	1,69	1,50
		16-17	Mean		4,26	3,48	3,48	3,14
			N		23	23	21	22
			Std. Deviation		1,10	1,59	1,66	1,64
		20-21	Mean		3,85	3,50	3,18	2,46
			N		27	26	22	26
			Std. Deviation		1,20	1,21	,96	1,14
		Total	Mean		4,08	3,49	3,14	2,63
			N		76	75	69	73
			Std. Deviation		1,19	1,39	1,49	1,45

Report

gender	nationality	Age		jazz	radio	recorded music	happy	bored
female	American	12-13	Mean	4,27	2,19	2,96	1,85	1,69
			N	26	26	26	26	26
			Std. Deviation	1,04	1,36	1,54	1,19	,97
		16-17	Mean	4,27	2,71	2,85	2,80	2,80
			N	22	21	20	20	20
			Std. Deviation	1,28	1,45	1,50	1,61	1,58
		20-21	Mean	4,50	3,46	3,50	3,27	3,42
			N	26	26	26	26	26
			Std. Deviation	,76	1,36	1,21	1,34	1,30
		Total	Mean	4,35	2,79	3,12	2,63	2,63
			N	74	73	72	72	72
			Std. Deviation	1,03	1,47	1,42	1,49	1,47
	Total	12-13	Mean	3,90	3,14	3,15	2,27	2,27
			N	71	98	98	98	97
			Std. Deviation	1,16	1,54	1,46	1,38	1,48
		16-17	Mean	4,31	3,03	3,03	2,52	2,73
			N	72	94	93	90	92
			Std. Deviation	1,12	1,39	1,46	1,54	1,53
		20-21	Mean	4,24	3,17	3,24	2,97	2,79
			N	79	106	105	101	105
			Std. Deviation	,84	1,37	1,21	1,21	1,27
		Total	Mean	4,15	3,12	3,15	2,59	2,60
			N	222	298	296	289	294
			Std. Deviation	1,05	1,43	1,37	1,40	1,44
Total	English	12-13	Mean	3,38	3,00	2,80	2,60	2,18
			N	48	50	50	50	50
			Std. Deviation	1,28	1,32	1,36	1,34	1,34
		16-17	Mean	4,20	2,86	2,71	2,10	2,41
			N	49	49	49	48	49
			Std. Deviation	1,24	1,29	1,41	1,26	1,40
		20-21	Mean	4,02	2,66	2,36	2,62	2,64
			N	50	50	50	50	50
			Std. Deviation	,87	1,22	1,14	1,12	1,12
		Total	Mean	3,87	2,84	2,62	2,45	2,41
			N	147	149	149	148	149
			Std. Deviation	1,19	1,28	1,31	1,26	1,29
	Greek	12-13	Mean	3,84	4,04	3,90	2,78	3,47
			N	50	51	49	51	51
			Std. Deviation	1,28	1,33	1,29	1,39	1,59
		16-17	Mean	4,42	2,79	3,00	2,21	3,02
			N	53	53	52	53	53
			Std. Deviation	,97	1,21	1,39	1,28	1,47
		20-21	Mean	3,93	2,63	3,43	2,70	2,76
			N	46	46	46	46	46
			Std. Deviation	,98	1,22	1,09	1,35	1,32
		Total	Mean	4,07	3,17	3,44	2,55	3,09
			N	149	150	147	150	150
			Std. Deviation	1,11	1,40	1,31	1,35	1,49

Report

gender	nationality	Age		jazz	radio	recorded music	happy	bored
Total	Japanese	12-13	Mean		4,16	3,32	3,26	2,55
			N		50	50	50	49
			Std. Deviation		1,15	1,53	1,61	1,49
		16-17	Mean		3,89	3,32	3,21	3,11
			N		47	47	43	46
			Std. Deviation		1,34	1,49	1,58	1,46
		20-21	Mean		4,12	3,58	2,95	2,27
			N		49	48	43	48
			Std. Deviation		1,07	1,27	1,19	1,18
		Total	Mean		4,06	3,41	3,15	2,64
			N		146	145	136	143
			Std. Deviation		1,19	1,43	1,48	1,42
	American	12-13	Mean	4,20	2,48	3,08	2,08	2,00
			N	50	50	50	50	50
			Std. Deviation	,97	1,43	1,40	1,24	1,12
		16-17	Mean	4,26	2,84	2,90	2,85	2,77
			N	50	49	48	47	47
			Std. Deviation	1,21	1,55	1,56	1,61	1,59
		20-21	Mean	4,54	3,42	3,52	3,32	3,34
			N	50	50	50	50	50
			Std. Deviation	,73	1,40	1,22	1,41	1,27
		Total	Mean	4,33	2,91	3,17	2,75	2,70
			N	150	149	148	147	147
			Std. Deviation	,99	1,50	1,41	1,51	1,44
	Total	12-13	Mean	3,81	3,42	3,27	2,68	2,55
			N	148	201	199	201	200
			Std. Deviation	1,23	1,48	1,44	1,46	1,50
		16-17	Mean	4,30	3,08	2,98	2,57	2,83
			N	152	198	196	191	195
			Std. Deviation	1,14	1,42	1,47	1,49	1,50
		20-21	Mean	4,17	3,22	3,22	2,90	2,76
			N	146	195	194	189	194
			Std. Deviation	,90	1,37	1,28	1,29	1,27
		Total	Mean	4,09	3,24	3,16	2,71	2,71
			N	446	594	589	581	589
			Std. Deviation	1,11	1,43	1,40	1,42	1,43

Report

gender	nationality	Age		like the subject	dislike the subject	disturbed by other noises	can't concentrate	makes me nervous
male	English	12-13	Mean	3,82	3,69	2,96	2,43	4,11
			N	28	26	28	28	28
			Std. Deviation	1,06	1,59	1,67	1,53	1,37
		16-17	Mean	3,05	3,05	3,14	2,05	3,70
			N	21	21	21	21	20
			Std. Deviation	1,53	1,50	1,39	1,24	1,49
		20-21	Mean	2,68	2,86	2,68	1,59	3,27
			N	22	22	22	22	22
			Std. Deviation	1,25	1,28	1,25	1,01	1,61
		Total	Mean	3,24	3,23	2,93	2,06	3,73
			N	71	69	71	71	70
			Std. Deviation	1,35	1,50	1,46	1,33	1,50
	Greek	12-13	Mean	3,48	4,07	2,52	1,67	2,81
			N	27	27	27	27	27
			Std. Deviation	1,55	1,24	1,58	1,33	1,75
		16-17	Mean	3,03	3,00	2,94	1,74	2,63
			N	31	31	31	31	30
			Std. Deviation	1,08	1,26	1,39	,93	1,40
		20-21	Mean	3,29	2,74	2,67	2,38	2,71
			N	21	19	21	21	21
			Std. Deviation	1,23	1,24	1,32	1,47	1,45
		Total	Mean	3,25	3,31	2,72	1,89	2,72
			N	79	77	79	79	78
			Std. Deviation	1,30	1,36	1,43	1,25	1,53
	Japanese	12-13	Mean	3,63	3,67	3,67	3,61	3,88
			N	24	24	24	23	24
			Std. Deviation	1,61	1,52	1,40	1,47	1,65
		16-17	Mean	3,33	3,33	4,18	2,30	3,00
			N	24	24	22	23	24
			Std. Deviation	1,58	1,58	1,33	1,49	1,64
		20-21	Mean	3,52	3,71	3,33	1,68	2,67
			N	21	21	21	22	21
			Std. Deviation	1,17	1,15	1,46	1,04	1,71
		Total	Mean	3,49	3,57	3,73	2,54	3,20
			N	69	69	67	68	69
			Std. Deviation	1,46	1,43	1,42	1,56	1,72
	American	12-13	Mean	2,79	2,79	2,42	2,58	3,48
			N	24	24	24	24	23
			Std. Deviation	1,47	1,41	1,32	1,56	1,56
		16-17	Mean	3,19	2,96	3,19	3,22	3,74
			N	27	27	27	27	27
			Std. Deviation	1,73	1,58	1,66	1,74	1,51
		20-21	Mean	3,63	3,63	3,58	2,25	3,50
			N	24	24	24	24	24
			Std. Deviation	1,21	1,24	1,28	1,29	1,35
		Total	Mean	3,20	3,12	3,07	2,71	3,58
			N	75	75	75	75	74
			Std. Deviation	1,52	1,45	1,50	1,58	1,46

Report

gender	nationality	Age		like the subject	dislike the subject	disturbed by other noises	can't concentrat e	makes me nervous
male	Total	12-13	Mean	3,45	3,57	2,88	2,53	3,57
			N	103	101	103	102	102
			Std. Deviation	1,46	1,50	1,56	1,60	1,64
		16-17	Mean	3,15	3,08	3,32	2,32	3,23
			N	103	103	101	102	101
			Std. Deviation	1,46	1,46	1,51	1,47	1,56
		20-21	Mean	3,28	3,26	3,08	1,98	3,06
			N	88	86	88	89	88
			Std. Deviation	1,25	1,29	1,37	1,24	1,55
		Total	Mean	3,29	3,30	3,09	2,29	3,30
			N	294	290	292	293	291
			Std. Deviation	1,40	1,44	1,49	1,47	1,60
female	English	12-13	Mean	2,14	2,36	2,18	2,41	3,77
			N	22	22	22	22	22
			Std. Deviation	1,25	1,36	1,37	1,68	1,60
		16-17	Mean	2,74	2,88	2,78	1,92	3,28
			N	27	26	27	26	25
			Std. Deviation	1,53	1,53	1,45	1,26	1,54
		20-21	Mean	2,96	2,78	2,96	1,89	4,00
			N	28	27	28	28	27
			Std. Deviation	1,14	1,19	1,29	1,23	1,36
		Total	Mean	2,65	2,69	2,68	2,05	3,69
			N	77	75	77	76	74
			Std. Deviation	1,35	1,37	1,39	1,38	1,51
	Greek	12-13	Mean	3,29	3,38	3,50	1,62	2,71
			N	24	24	24	24	24
			Std. Deviation	1,49	1,61	1,47	,97	1,57
		16-17	Mean	3,14	3,09	3,14	1,59	2,82
			N	22	22	22	22	22
			Std. Deviation	1,42	1,44	1,46	,96	1,59
		20-21	Mean	3,08	3,28	2,80	1,56	2,64
			N	25	25	25	25	25
			Std. Deviation	1,22	1,37	1,35	,92	1,60
		Total	Mean	3,17	3,25	3,14	1,59	2,72
			N	71	71	71	71	71
			Std. Deviation	1,36	1,46	1,44	,93	1,57
	Japanese	12-13	Mean	3,27	3,69	3,69	3,31	3,73
			N	26	26	26	26	26
			Std. Deviation	1,48	1,35	1,41	1,41	1,46
		16-17	Mean	3,95	4,00	4,43	1,57	2,87
			N	22	22	21	21	23
			Std. Deviation	1,40	1,48	1,08	1,33	1,94
		20-21	Mean	3,50	3,58	3,65	1,78	2,23
			N	26	26	26	23	26
			Std. Deviation	1,24	1,36	1,26	1,24	1,58
		Total	Mean	3,55	3,74	3,89	2,29	2,95
			N	74	74	73	70	75
			Std. Deviation	1,39	1,39	1,30	1,53	1,75

Report

gender	nationality	Age		like the subject	dislike the subject	disturbed by other noises	can't concentrat e	makes me nervous
female	American	12-13	Mean	2,69	2,58	2,13	1,62	3,50
			N	26	26	24	26	26
			Std. Deviation	1,52	1,50	1,51	,80	1,33
		16-17	Mean	3,25	2,95	3,10	2,81	3,57
			N	20	21	21	21	21
			Std. Deviation	1,52	1,77	1,55	1,54	1,47
		20-21	Mean	3,65	3,65	3,42	1,77	3,19
			N	26	26	26	26	26
			Std. Deviation	1,23	1,23	1,27	,91	1,44
		Total	Mean	3,19	3,07	2,89	2,01	3,41
			N	72	73	71	73	73
			Std. Deviation	1,46	1,55	1,53	1,20	1,40
	Total	12-13	Mean	2,87	3,02	2,91	2,24	3,43
			N	98	98	96	98	98
			Std. Deviation	1,50	1,54	1,60	1,42	1,53
		16-17	Mean	3,24	3,22	3,32	1,97	3,13
			N	91	91	91	90	91
			Std. Deviation	1,52	1,60	1,51	1,35	1,65
		20-21	Mean	3,30	3,32	3,21	1,75	3,03
			N	105	104	105	102	104
			Std. Deviation	1,22	1,32	1,32	1,08	1,62
		Total	Mean	3,14	3,19	3,14	1,99	3,19
			N	294	293	292	290	293
			Std. Deviation	1,42	1,48	1,48	1,30	1,60
Total	English	12-13	Mean	3,08	3,08	2,62	2,42	3,96
			N	50	48	50	50	50
			Std. Deviation	1,41	1,62	1,58	1,58	1,47
		16-17	Mean	2,88	2,96	2,94	1,98	3,47
			N	48	47	48	47	45
			Std. Deviation	1,52	1,50	1,42	1,24	1,52
		20-21	Mean	2,84	2,82	2,84	1,76	3,67
			N	50	49	50	50	49
			Std. Deviation	1,18	1,22	1,27	1,13	1,51
		Total	Mean	2,93	2,95	2,80	2,05	3,71
			N	148	144	148	147	144
			Std. Deviation	1,37	1,45	1,42	1,35	1,50
	Greek	12-13	Mean	3,39	3,75	2,98	1,65	2,76
			N	51	51	51	51	51
			Std. Deviation	1,51	1,45	1,59	1,16	1,66
		16-17	Mean	3,08	3,04	3,02	1,68	2,71
			N	53	53	53	53	52
			Std. Deviation	1,22	1,33	1,41	,94	1,47
		20-21	Mean	3,17	3,05	2,74	1,93	2,67
			N	46	44	46	46	46
			Std. Deviation	1,22	1,33	1,32	1,25	1,52
		Total	Mean	3,21	3,28	2,92	1,75	2,72
			N	150	148	150	150	149
			Std. Deviation	1,32	1,40	1,44	1,12	1,54

Report

gender	nationality	Age		like the subject	dislike the subject	disturbed by other noises	can't concentrat e	makes me nervous
Total	Japanese	12-13	Mean	3,44	3,68	3,68	3,45	3,80
			N	50	50	50	49	50
			Std. Deviation	1,54	1,42	1,39	1,43	1,54
		16-17	Mean	3,63	3,65	4,30	1,95	2,94
			N	46	46	43	44	47
			Std. Deviation	1,51	1,55	1,21	1,45	1,77
		20-21	Mean	3,51	3,64	3,51	1,73	2,43
			N	47	47	47	45	47
			Std. Deviation	1,20	1,26	1,35	1,14	1,64
		Total	Mean	3,52	3,66	3,81	2,41	3,07
			N	143	143	140	138	144
			Std. Deviation	1,42	1,40	1,35	1,55	1,74
	American	12-13	Mean	2,74	2,68	2,27	2,08	3,49
			N	50	50	48	50	49
			Std. Deviation	1,48	1,45	1,41	1,31	1,43
		16-17	Mean	3,21	2,96	3,15	3,04	3,67
			N	47	48	48	48	48
			Std. Deviation	1,63	1,65	1,60	1,65	1,48
		20-21	Mean	3,64	3,64	3,50	2,00	3,34
			N	50	50	50	50	50
			Std. Deviation	1,21	1,22	1,27	1,12	1,39
		Total	Mean	3,20	3,09	2,98	2,36	3,50
			N	147	148	146	148	147
			Std. Deviation	1,48	1,50	1,51	1,44	1,43
	Total	12-13	Mean	3,16	3,30	2,89	2,39	3,50
			N	201	199	199	200	200
			Std. Deviation	1,50	1,54	1,57	1,52	1,59
		16-17	Mean	3,19	3,14	3,32	2,16	3,18
			N	194	194	192	192	192
			Std. Deviation	1,49	1,52	1,51	1,42	1,60
		20-21	Mean	3,29	3,29	3,15	1,86	3,04
			N	193	190	193	191	192
			Std. Deviation	1,23	1,30	1,34	1,16	1,58
		Total	Mean	3,21	3,25	3,12	2,14	3,24
			N	588	583	584	583	584
			Std. Deviation	1,41	1,46	1,49	1,39	1,60

Report

gender	nationality	Age		unable to learn	someone suggests I should	type of music	subject I am studying
male	English	12-13	Mean	3,36	3,56	2,86	3,64
			N	28	27	28	28
			Std. Deviation	1,47	1,34	1,35	1,31
		16-17	Mean	2,81	3,43	2,48	2,48
			N	21	21	21	21
			Std. Deviation	1,50	1,33	1,50	1,36
		20-21	Mean	1,91	3,73	2,18	3,50
			N	22	22	22	22
			Std. Deviation	1,19	1,08	1,18	1,01
		Total	Mean	2,75	3,57	2,54	3,25
			N	71	70	71	71
			Std. Deviation	1,51	1,25	1,36	1,33
	Greek	12-13	Mean	2,07	2,33	2,65	3,80
			N	27	27	26	25
			Std. Deviation	1,47	1,49	1,41	1,55
		16-17	Mean	2,19	3,45	2,43	2,32
			N	31	31	30	31
			Std. Deviation	1,14	1,26	1,38	1,08
		20-21	Mean	2,95	3,48	2,10	2,52
			N	21	21	21	21
			Std. Deviation	1,47	1,12	1,22	1,17
		Total	Mean	2,35	3,08	2,42	2,86
			N	79	79	77	77
			Std. Deviation	1,38	1,40	1,35	1,42
	Japanese	12-13	Mean	3,71	3,75	3,37	4,13
			N	24	24	24	24
			Std. Deviation	1,63	1,36	1,53	1,30
		16-17	Mean	2,87	3,30	2,65	3,63
			N	24	23	23	24
			Std. Deviation	1,57	1,58	1,50	1,41
		20-21	Mean	2,27	3,64	2,61	3,60
			N	22	22	18	20
			Std. Deviation	1,49	1,29	1,09	1,10
		Total	Mean	2,97	3,57	2,91	3,79
			N	70	69	65	68
			Std. Deviation	1,65	1,41	1,43	1,29
	American	12-13	Mean	2,71	2,92	2,29	2,92
			N	24	24	24	24
			Std. Deviation	1,78	1,47	1,16	1,32
		16-17	Mean	3,33	3,85	3,11	3,48
			N	27	26	27	27
			Std. Deviation	1,73	1,32	1,60	1,58
		20-21	Mean	2,79	3,79	3,13	3,74
			N	24	24	23	23
			Std. Deviation	1,47	1,18	1,42	1,36
		Total	Mean	2,96	3,53	2,85	3,38
			N	75	74	74	74
			Std. Deviation	1,67	1,38	1,45	1,45

Report

gender	nationality	Age		unable to learn	someone suggests I should	type of music	subject I am studying
male	Total	12-13	Mean	2,95	3,13	2,79	3,62
			N	103	102	102	101
			Std. Deviation	1,68	1,51	1,40	1,42
		16-17	Mean	2,78	3,51	2,67	2,96
			N	103	101	101	103
			Std. Deviation	1,53	1,36	1,50	1,46
		20-21	Mean	2,48	3,66	2,51	3,35
			N	89	89	84	86
			Std. Deviation	1,45	1,16	1,29	1,24
		Total	Mean	2,75	3,42	2,67	3,31
			N	295	292	287	290
			Std. Deviation	1,57	1,37	1,41	1,41
female	English	12-13	Mean	3,48	3,36	2,24	2,86
			N	21	22	21	22
			Std. Deviation	1,72	1,40	1,22	1,42
		16-17	Mean	2,37	3,07	2,29	2,79
			N	27	27	28	28
			Std. Deviation	1,57	1,49	1,38	1,55
		20-21	Mean	2,29	3,82	2,32	3,22
			N	28	28	28	27
			Std. Deviation	1,38	1,22	1,28	1,25
		Total	Mean	2,64	3,43	2,29	2,96
			N	76	77	77	77
			Std. Deviation	1,61	1,39	1,29	1,41
	Greek	12-13	Mean	1,96	2,46	2,54	3,17
			N	24	24	24	24
			Std. Deviation	1,12	1,41	1,64	1,43
		16-17	Mean	2,18	4,00	2,05	2,18
			N	22	22	22	22
			Std. Deviation	1,37	1,31	1,25	1,30
		20-21	Mean	1,96	3,48	2,35	2,68
			N	25	25	23	25
			Std. Deviation	1,14	1,19	1,47	1,44
		Total	Mean	2,03	3,30	2,32	2,69
			N	71	71	69	71
			Std. Deviation	1,19	1,44	1,46	1,43
	Japanese	12-13	Mean	3,85	3,50	3,31	3,88
			N	26	26	26	26
			Std. Deviation	1,62	1,50	1,54	1,21
		16-17	Mean	2,52	3,50	2,14	3,70
			N	23	22	14	23
			Std. Deviation	1,65	1,41	1,41	1,22
		20-21	Mean	2,42	3,31	2,84	3,96
			N	24	26	25	27
			Std. Deviation	1,44	1,32	1,07	,98
		Total	Mean	2,96	3,43	2,88	3,86
			N	73	74	65	76
			Std. Deviation	1,69	1,40	1,40	1,13

Report

gender	nationality	Age		unable to learn	someone suggests I should	type of music	subject I am studying
female	American	12-13	Mean	2,46	2,81	1,77	2,58
			N	26	26	26	24
			Std. Deviation	1,30	1,41	,76	1,38
		16-17	Mean	3,52	4,05	2,68	3,52
			N	21	21	19	21
			Std. Deviation	1,44	1,28	1,45	1,57
		20-21	Mean	1,85	3,35	2,92	3,46
			N	26	26	26	26
			Std. Deviation	,97	1,16	1,41	1,14
		Total	Mean	2,55	3,36	2,44	3,18
			N	73	73	71	71
			Std. Deviation	1,39	1,37	1,32	1,41
	Total	12-13	Mean	2,93	3,03	2,47	3,15
			N	97	98	97	96
			Std. Deviation	1,62	1,47	1,44	1,43
		16-17	Mean	2,62	3,62	2,29	3,03
			N	93	92	83	94
			Std. Deviation	1,57	1,42	1,37	1,52
		20-21	Mean	2,13	3,50	2,61	3,34
			N	103	105	102	105
			Std. Deviation	1,25	1,23	1,32	1,28
		Total	Mean	2,55	3,38	2,47	3,18
			N	293	295	282	295
			Std. Deviation	1,52	1,39	1,38	1,41
Total	English	12-13	Mean	3,41	3,47	2,59	3,30
			N	49	49	49	50
			Std. Deviation	1,57	1,36	1,32	1,40
		16-17	Mean	2,56	3,23	2,37	2,65
			N	48	48	49	49
			Std. Deviation	1,54	1,42	1,42	1,47
		20-21	Mean	2,12	3,78	2,26	3,35
			N	50	50	50	49
			Std. Deviation	1,30	1,15	1,23	1,15
		Total	Mean	2,69	3,50	2,41	3,10
			N	147	147	148	148
			Std. Deviation	1,56	1,32	1,32	1,37
	Greek	12-13	Mean	2,02	2,39	2,60	3,49
			N	51	51	50	49
			Std. Deviation	1,30	1,44	1,51	1,52
		16-17	Mean	2,19	3,68	2,27	2,26
			N	53	53	52	53
			Std. Deviation	1,23	1,30	1,33	1,16
		20-21	Mean	2,41	3,48	2,23	2,61
			N	46	46	44	46
			Std. Deviation	1,38	1,15	1,34	1,31
		Total	Mean	2,20	3,18	2,37	2,78
			N	150	150	146	148
			Std. Deviation	1,30	1,42	1,40	1,42

Report

gender	nationality	Age		unable to learn	someone suggests I should	type of music	subject I am studying
Total	Japanese	12-13	Mean	3,78	3,62	3,34	4,00
			N	50	50	50	50
			Std. Deviation	1,61	1,43	1,52	1,25
		16-17	Mean	2,70	3,40	2,46	3,66
			N	47	45	37	47
			Std. Deviation	1,60	1,48	1,46	1,31
		20-21	Mean	2,35	3,46	2,74	3,81
			N	46	48	43	47
			Std. Deviation	1,45	1,30	1,07	1,04
		Total	Mean	2,97	3,50	2,89	3,83
			N	143	143	130	144
			Std. Deviation	1,66	1,40	1,41	1,20
	American	12-13	Mean	2,58	2,86	2,02	2,75
			N	50	50	50	48
			Std. Deviation	1,54	1,43	1,00	1,34
		16-17	Mean	3,42	3,94	2,93	3,50
			N	48	47	46	48
			Std. Deviation	1,60	1,29	1,54	1,56
		20-21	Mean	2,30	3,56	3,02	3,59
			N	50	50	49	49
			Std. Deviation	1,31	1,18	1,41	1,24
		Total	Mean	2,76	3,44	2,65	3,28
			N	148	147	145	145
			Std. Deviation	1,55	1,37	1,40	1,43
	Total	12-13	Mean	2,94	3,08	2,64	3,39
			N	200	200	199	197
			Std. Deviation	1,65	1,49	1,42	1,44
		16-17	Mean	2,70	3,56	2,50	2,99
			N	196	193	184	197
			Std. Deviation	1,55	1,39	1,45	1,49
		20-21	Mean	2,29	3,57	2,56	3,35
			N	192	194	186	191
			Std. Deviation	1,35	1,19	1,31	1,26
		Total	Mean	2,65	3,40	2,57	3,24
			N	588	587	569	585
			Std. Deviation	1,54	1,38	1,39	1,41

Report

gender	nationality	Age		nature of the subject	mood I am in
male	English	12-13	Mean	3,75	2,86
			N	28	28
			Std. Deviation	1,29	1,38
		16-17	Mean	2,52	1,81
			N	21	21
			Std. Deviation	1,40	1,12
		20-21	Mean	3,41	1,95
			N	22	22
			Std. Deviation	1,05	1,09
		Total	Mean	3,28	2,27
			N	71	71
			Std. Deviation	1,34	1,30
	Greek	12-13	Mean	4,19	2,30
			N	26	27
			Std. Deviation	,98	1,44
		16-17	Mean	2,35	1,94
			N	31	31
			Std. Deviation	1,20	1,15
		20-21	Mean	3,10	1,71
			N	21	21
			Std. Deviation	1,22	,90
		Total	Mean	3,17	2,00
			N	78	79
			Std. Deviation	1,37	1,21
	Japanese	12-13	Mean	4,25	2,83
			N	24	24
			Std. Deviation	1,19	1,71
		16-17	Mean	3,58	2,33
			N	24	24
			Std. Deviation	1,44	1,27
		20-21	Mean	3,70	1,76
			N	20	21
			Std. Deviation	,98	1,04
		Total	Mean	3,85	2,33
			N	68	69
			Std. Deviation	1,25	1,43
	American	12-13	Mean	3,37	2,33
			N	24	24
			Std. Deviation	1,17	1,37
		16-17	Mean	3,63	2,96
			N	27	27
			Std. Deviation	1,47	1,68
		20-21	Mean	3,74	3,30
			N	23	23
			Std. Deviation	1,36	1,49
		Total	Mean	3,58	2,86
			N	74	74
			Std. Deviation	1,33	1,56

Report

gender	nationality	Age		nature of the subject	mood I am in
male	Total	12-13	Mean	3,89	2,58
			N	102	103
			Std. Deviation	1,20	1,48
		16-17	Mean	3,01	2,27
			N	103	103
			Std. Deviation	1,48	1,39
		20-21	Mean	3,49	2,21
			N	86	87
			Std. Deviation	1,18	1,32
		Total	Mean	3,46	2,36
			N	291	293
			Std. Deviation	1,35	1,41
female	English	12-13	Mean	2,91	1,64
			N	22	22
			Std. Deviation	1,34	1,00
		16-17	Mean	2,85	1,93
			N	27	27
			Std. Deviation	1,54	1,17
		20-21	Mean	3,39	2,29
			N	28	28
			Std. Deviation	1,20	1,21
		Total	Mean	3,06	1,97
			N	77	77
			Std. Deviation	1,37	1,16
	Greek	12-13	Mean	3,29	1,71
			N	24	24
			Std. Deviation	1,27	1,16
		16-17	Mean	2,41	1,36
			N	22	22
			Std. Deviation	1,26	,79
		20-21	Mean	2,80	1,60
			N	25	25
			Std. Deviation	1,38	1,12
		Total	Mean	2,85	1,56
			N	71	71
			Std. Deviation	1,34	1,04
	Japanese	12-13	Mean	3,96	2,46
			N	26	26
			Std. Deviation	1,18	1,63
		16-17	Mean	3,57	2,13
			N	23	23
			Std. Deviation	1,27	1,52
		20-21	Mean	4,04	1,93
			N	27	27
			Std. Deviation	,94	1,14
		Total	Mean	3,87	2,17
			N	76	76
			Std. Deviation	1,14	1,44

Report

gender	nationality	Age		nature of the subject	mood I am in
female	American	12-13	Mean	2,92	1,69
			N	25	26
			Std. Deviation	1,26	,84
		16-17	Mean	3,52	2,48
			N	21	21
			Std. Deviation	1,60	1,47
		20-21	Mean	3,46	2,65
			N	26	26
			Std. Deviation	1,14	1,32
		Total	Mean	3,29	2,26
			N	72	73
			Std. Deviation	1,34	1,28
	Total	12-13	Mean	3,29	1,89
			N	97	98
			Std. Deviation	1,31	1,23
		16-17	Mean	3,08	1,97
			N	93	93
			Std. Deviation	1,48	1,31
		20-21	Mean	3,43	2,12
			N	106	106
			Std. Deviation	1,23	1,25
		Total	Mean	3,27	2,00
			N	296	297
			Std. Deviation	1,35	1,26
Total	English	12-13	Mean	3,38	2,32
			N	50	50
			Std. Deviation	1,37	1,36
		16-17	Mean	2,71	1,87
			N	48	48
			Std. Deviation	1,47	1,14
		20-21	Mean	3,40	2,14
			N	50	50
			Std. Deviation	1,12	1,16
		Total	Mean	3,17	2,11
			N	148	148
			Std. Deviation	1,36	1,23
	Greek	12-13	Mean	3,76	2,02
			N	50	51
			Std. Deviation	1,20	1,33
		16-17	Mean	2,38	1,70
			N	53	53
			Std. Deviation	1,21	1,05
		20-21	Mean	2,93	1,65
			N	46	46
			Std. Deviation	1,31	1,02
		Total	Mean	3,01	1,79
			N	149	150
			Std. Deviation	1,36	1,15

Report

gender	nationality	Age		nature of the subject	mood I am in
Total	Japanese	12-13	Mean	4,10	2,64
			N	50	50
			Std. Deviation	1,18	1,66
		16-17	Mean	3,57	2,23
			N	47	47
			Std. Deviation	1,35	1,39
		20-21	Mean	3,89	1,85
			N	47	48
			Std. Deviation	,96	1,09
		Total	Mean	3,86	2,25
			N	144	145
			Std. Deviation	1,19	1,43
	American	12-13	Mean	3,14	2,00
			N	49	50
			Std. Deviation	1,22	1,16
		16-17	Mean	3,58	2,75
			N	48	48
			Std. Deviation	1,51	1,59
		20-21	Mean	3,59	2,96
			N	49	49
			Std. Deviation	1,24	1,43
		Total	Mean	3,44	2,56
			N	146	147
			Std. Deviation	1,34	1,45
	Total	12-13	Mean	3,60	2,24
			N	199	201
			Std. Deviation	1,29	1,41
		16-17	Mean	3,04	2,13
			N	196	196
			Std. Deviation	1,48	1,35
		20-21	Mean	3,46	2,16
			N	192	193
			Std. Deviation	1,21	1,28
		Total	Mean	3,37	2,18
			N	587	590
			Std. Deviation	1,35	1,35

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